Arizona Department of Transportation

Office of Environmental Services
206 South 17th Avenue, MD 102A
Phoenix, Arizona 85007

Statewide Stormwater Management Plan

MS4 Permit No. AZS000018-2008



Statewide Stormwater Management Plan

Prepared For:

Office of Environmental Services
Arizona Department of Transportation
206 South 17th Avenue, MD 102A
Phoenix, AZ 85007

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ACRONYMS

A.A.C.	Arizona Administrative Code
AASHTO	American Association of State Highway Transportation Officials
ACB	Arizona Clean and Beautiful
ADEM	Arizona Department of Emergency Management
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
ADOT	Arizona Department of Transportation
AG	Attorney General
AGC	Associated General Contractors
ARS	Arizona Revised Statute
ATRC	Arizona Transportation Research Center
AZPDES	Arizona Pollutant Discharge Elimination System
BLM	Bureau of Land Management
BMP	Best Management Practice
CAAG	Central Arizona Association of Governments
CCP	Communications and Community Partnerships
CFR	Code of Federal Regulations
CGP	Construction General Permit
COC	Chain of Custody
COG	Council of Government
CWA	Clean Water Act
DEC	District Environmental Coordinator
DMR	Discharge Monitoring Report
DMS	Digital Message Sign
DOT	Department of Transportation
DTC	District Training Coordinator
ECC	Erosion Control Coordinator
EIS	Environmental Impact Statement
EO	Executive Order
EPG	Environmental Planning Group
ERP	Enforcement Response Plan
FCGP	Federal Construction General Permit
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
GIS	Geographic Information System
GPS	Global Positioning System
ITD	Intermodal Transportation Division
MAG	Maricopa Association of Governments
MDL	Method Detection Limit
MOU	Memorandum of Understanding

ACRONYMS (continued)

MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
MSLT	Maintenance Servant Leadership Team
MVD	Motor Vehicle Division
NACOG	Northern Arizona Council of Governments
NASPA	Northern Arizona Stormwater Pollution Alliance
NCHRP	National Cooperative Highway Research Program
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
OES	Office of Environmental Services
OSHA	Occupational Safety and Health Administration
PAG	Pima Association of Governments
PPAC	Priority Planning Advisory Committee
QA/QC	Quality Assurance/Quality Control
QAM	Quality Assurance Manual
RLA	Registered Landscape Architect
ROW	Right of Way
SEAGO	South Eastern Arizona Government Organization
SSWMP	Statewide Stormwater Management Plan
STORM	Stormwater Outreach for Regional Municipalities
SWAT	Stormwater Advisory Team
SWMWG	Stormwater Management Working Group
SWPPP	Stormwater Pollution Prevention Plan
TKN	Total Kjeldahl Nitrogen
TNF	Tonto National Forest
TRB	Transportation Research Board
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
VMS	Variable Message Sign
WACOG	Western Arizona Council of Governments
WUS	Water of the United States
WQS	Water Quality Standard

Permittee Name: Arizona Department of Transportation

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I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Todd G. Williams — March 29, 2010

Todd G. Williams, M. Sc, Director, OES *Date*

1.0 Introduction

This Statewide Stormwater Management Plan (SSWMP) has been prepared as required by Section 3 of the Arizona Department of Transportation's (ADOT) Arizona Pollutant Discharge Elimination System (AZPDES) Statewide Stormwater Permit No. AZS000018-2008 (hereafter referred to as the Permit). It is an individual permit including elements associated with ADOT's municipal separate storm sewer system (MS4), industrial facilities, and construction projects.

1.1 Purpose

The SSWMP establishes the comprehensive statewide stormwater management program for all ADOT activities and functional units. The SSWMP is the over-arching document guiding implementation of the stormwater management program. The scope of the permit and this SSWMP includes all stormwater discharges associated with the MS4 under ADOT's control, industrial facilities, and statewide construction.

MS4

ADOT is considered a large MS4 by virtue of ADOT-owned conveyances or systems of conveyances used for collecting and conveying stormwater. These include drainage systems, catch basins, curbs, gutters, ditches, man-made channels or storm drains associated with roads and highways constructed, maintained, or operated by ADOT. The Arizona Department of Environmental Quality (ADEQ) determined ADOT is required to meet the Phase II MS4 community requirements in addition to the Phase I requirements.

Industrial Activities

The Permit covers ADOT facilities under six industrial sectors from the Multi-Sector General Permit (MSGP):

- Sector D–Asphalt Paving and Roofing Materials and Lubricant Manufacturing applies to mobile asphalt batch plants.
- Sector E–Glass, Clay, Cement, Concrete, and Gypsum Products applies to mobile concrete batch plants.
- Sector J–Mineral Mining and Dressing applies to all ADOT-owned or -operated material sources.
- Sector S–Air Transportation Facilities is applicable to the Grand Canyon National Park Airport.
- Sector X–Printing and Publishing applies to the ADOT print shop.
- Sector AA–Fabricated Metal Products applies to Traffic Operations' sign factory.

Construction Activities

The Permit covers construction activities that are owned, operated or contracted by ADOT. Stormwater discharges from support activities exclusive to ADOT projects are also covered by the permit. Much of ADOT's construction is performed by contractors. The Permit delineates ADOT's responsibilities for ensuring work done under contract complies with stormwater regulations although subcontractors are required to obtain coverage under the Arizona Construction General Permit (CGP).

ADOT's Permit provides AZPDES coverage for ADOT as owner of ADOT construction projects, excluding tribal lands and ADOT is not required to file a Notice of Intent (NOI) for construction projects under the AZPDES CGP. For ADOT construction projects on tribal lands, ADOT must file an NOI with United States Environmental Protection Agency (USEPA) for coverage under the federal CGP.

ADOT construction contractors are required to file NOIs for coverage under the AZPDES CGP and are subject to its provisions. ADOT continues to be responsible for complying with construction stormwater discharge requirements statewide, whether activities are performed directly by ADOT staff or by contractors on behalf of ADOT. ADOT is responsible for ensuring that contractors adhere to the AZDPES CGP.

To that end, ADOT has inspection oversight responsibility and must ensure that a trained and certified Erosion Control Coordinator (ECC) inspects construction activity at every construction site. The Permit also requires ADOT to implement a system to monitor contracted construction activities and to enforce Permit provisions. ADOT is required to list and describe all violations and enforcement responses taken for construction activities in the Annual Report submitted to ADEQ.

ADOT's authority to take enforcement action at construction sites derives from its contractual relationship with construction contractors. ADOT's Standard Specifications Section 104.09 contains mechanisms ADOT can use to enforce Permit compliance. These are discussed in more detail in Section 3.

1.2 Permit History

ADOT's current AZPDES Permit was issued on September 19, 2008 by ADEQ. This Permit replaces the original National Pollutant Discharge Elimination System (NPDES) Permit issued by USEPA on September 30, 1999. The scope of the current Permit includes all stormwater discharges associated with construction sites, industrial facilities, and MS4s under ADOT's control.

1.3 Organization

This document is organized as follows:

- Section 2 describes ADOT's statutory responsibility for carrying out its programs and presents the organization and responsibilities for overall Permit compliance and program implementation within ADOT. It also describes the coordination efforts with other permittees and agencies and ADOT's Fiscal and Organizational Resources (staffing).

- Section 3 describes Program Management including the organization, responsibilities for program compliance and implementation within ADOT, and applicable documents covering aspects of the stormwater management program.
- Section 4 describes the best management practices (BMPs) to control discharges through education, illicit connections/illegal dumping detection and elimination, new construction and land disturbances controls, new development and redevelopment controls, and roadways controls.
- Section 5 describes the stormwater monitoring program.
- Section 6 describes the reporting requirements.

2.0 Program Administration

This section describes the administration of the SSWMP.

2.1 Legal Authority

This section summarizes the sources of ADOT's legal authority to enforce the provisions of the Permit and SSWMP. Procedures and policies for enforcement are described in the *Enforcement Response Plan* (*ERP*) discussed in section 3.3.5.

2.1.1 General ADOT Legal Authority

ADOT's delegated legal authority from the Arizona Legislature for control of activities within the state highway system right of way (ROW) and transportation facilities comes from Arizona Revised Statute (ARS) § 28-332 which states, "the exclusive control and jurisdiction over state highways, state routes, state-owned airports, and all state-owned transportation systems or modes are vested in the Department of Transportation (DOT)." Administrative powers delegated to the ADOT Director include adoption of rules the Director deems necessary for the "use of state highways and routes to prevent abuse and unauthorized use of state highways and routes" (ARS § 28-366).

ARS § 28-7053 gives the Director the authority to issue permits, enforce against unauthorized encroachments, and pursue legal remedies. Encroachment is defined as any structure or object of any kind or character that is placed in, under, or over a portion of the public highway or airport. This definition is interpreted to include stormwater-related encroachments. The requirements for highway ROW encroachment permits are listed in Arizona Administrative Code (A.A.C.) Title 17, Chapter 3, Article 5. These regulations establish permit application procedures; permit processing procedures; and initial placement, adjustment, relocation, reconstruction, and replacement for use of state highway ROW.

Illegal dumping (including illicit discharges) on state highway ROW is a Class 3 misdemeanor under ARS § 28-7056. ADOT has no direct enforcement powers; however, ADOT may initiate enforcement by filing a complaint with the highway patrol, county sheriffs' offices, and peace officers of cities and towns.

2.1.2 Authority Over ADOT Contractors

ADOT controls construction work performed on highway ROW through the use of contract provisions. Standard contract provisions are contained in ADOT *Standard Specifications for Road and Bridge Construction* (2008 Edition). Sections 104.09, 805 and 810 of the standard specifications address stormwater management, reseeding and erosion and pollution control, respectively. ADOT's standard contract provisions also require contractors to comply with all applicable federal, state and local regulations. ADOT has been working with Arizona Associated General Contractors (AGC) and other parties to revise sections 104.09, 805, and 810 of the standard specifications. Sections 805 and 810 were adopted in January 2007 and a draft version of section 104.09 was adopted (stored) in early 2009 (see Appendix A – ADOT Specifications). The

specifications enable ADOT to enforce stormwater management standards through ECC certification and structured contractual remedies for inadequate performance.

Section 104.09 of ADOT's Standard Specifications for construction contracts includes the following mechanisms to ensure contractors comply with stormwater pollution prevention requirements:

- Failure of the contractor to properly maintain the erosion control measures required in the approved construction stormwater pollution prevention plan (SWPPP) will be cause for the Engineer to reject the ECC and issue a stop work order. Rejection of the contractor's ECC shall be for failure to complete any of the following:
  - Should the Engineer (ADOT employee or representative) determine that the SWPPP is not being properly implemented; the contractor will be notified in writing of such deficiencies. The contractor's ECC shall fully implement, to the satisfaction of the Engineer, the requirements of the approved SWPPP within three working days.
  - Should any corrective measures not be completed within the time periods specified therein, the Engineer will notify the contractor in writing. The contractor's ECC shall complete all required corrective measures within two calendar days of such notification, except that direct inflows of sediment into a watercourse shall be corrected within 24 hours.
  - Should the Engineer determine that routine maintenance of the project's erosion control measures is not being adequately performed the contractor will be notified in writing. Within three working days, the contractor's ECC shall demonstrate, to the satisfaction of the Engineer that such steps have been taken to correct the problem (ADOT draft Specification 104.09, 2009).

These contractual provisions provide ADOT's legal authority to review and enforce the ADOT stormwater management standards on highway construction projects.

2.2 Coordination with Local Jurisdictions and Federal Agencies

This section describes ADOT's interactions with local jurisdictions and federal agencies as it relates to stormwater pollution prevention.

2.2.1 Cooperative Agreements

ARS § 28-401 provides ADOT's legal authority to enter into interagency agreements with local jurisdictions by giving the Director the ability to form cooperative agreements with other states, political subdivisions, or Indian tribes. The Arizona Legislature provided additional direction to ADOT in ARS § 28-363 which directs ADOT to:

> …assist regional transportation planning agencies, councils of government, tribal governments, counties, cities, and towns in the development of their regional and local transportation plans to ensure that the streets, highways, and other regionally significant modes of transportation within each county form an integrated and efficient regional system.

ADOT provides this assistance throughout the state of Arizona by serving on various Metropolitan Planning Organizations (MPOs) and working with Councils of Governments (COGs). MPOs are local steering committees that oversee regional transportation plans. COGs are regional councils are public organizations encompassing a multi-jurisdictional regional community formed to deal with issues and needs that cross city, town, county and even state boundaries, such as stormwater. ADOT will use the MPOs/COGs as the primary contacts for coordination on stormwater program issues within the designated urbanized areas and MS4 jurisdictions.

ADOT is member of both the Maricopa Association of Governments (MAG), which serves as the MPO for Maricopa County, and the Pima Association of Governments (PAG) which serves as the designated MPO for Pima County. In Yuma County, the Yuma MPO includes City of Yuma, Yuma County, City of San Luis, City of Somerton, Town of Wellton, the Cocopah Indian Tribe and ADOT. The Central Yavapai MPO consists of Chino Valley, City of Prescott, Prescott Valley, Yavapai County and ADOT. The Flagstaff MPO consists of the City of Flagstaff, Coconino County and ADOT.

ADOT also serves on some COGs. There are six COGs in Arizona: MAG, PAG, Central Arizona Association of Governments (CAAG), Northern Arizona Council of Governments (NACOG), South Eastern Arizona Government Organization (SEAGO) and Western Arizona Council of Governments (WACOG).

2.2.2 Coordination with US Forest Service, and US Bureau of Land Management

To accommodate federal agency coordination in Arizona, ADOT partners with the Federal Highway Administration (FHWA). Two federal agencies, the United States Bureau of Land Management (BLM) and the United States Forest Service (USFS), conduct activities with ADOT and FHWA. This process is formalized in two Memoranda of Understanding (MOU), the USFS-FHWA-ADOT MOU and the BLM-FHWA-ADOT MOU.

Forest Service

ADOT must comply with USFS regulations and the provisions of a 2008 national MOU between the USFS, FHWA and Southwestern Region of the USFS, *Regarding the Construction, Operation, and Maintenance of Highways in Arizona Crossing National Forest System Lands* (MOU 06-MU-11031600-013*).*

This MOU provides for a coordinated approach to accomplish National Forest System Land and Resource Management, transportation development and operation management in completing USFS, ADOT and FHWA goals and objectives.

Bureau of Land Management

The working relationship between FHWA and BLM is addressed by a nationwide interagency agreement signed in 1982 (AA 851-IA2-40). This national agreement was updated in 1997 and again in 2003 by an Arizona MOU and a 2003 Operating Agreement between BLM, FHWA and ADOT. The 2003 MOU (AZ-931-0309) provided a framework for a closer working relationship between agencies, authorized the creation of

issue-based subcommittees, developed a conflict resolution procedure and required agencies to meet no less frequently than annually. The 2003 Operating Agreement provides project-specific guidance, including direction on environmental issues. The 2003 MOU and Operating Agreement were revised and amended as part of a team effort to address issues in late 2004 (Amendment No. 1, 2004 to 2003 MOU and Operating Agreement No. AZ-931-0309) and again in early 2006 (Amendment No. 2, 2006 to 203 MOU and Operating Agreement No. AZ-931-0309).

An additional MOU was created and signed in 2004 to deal specifically with coordination of preparation of Environmental Impact Statements (EISs) dealing with Land Use Planning issues on BLM lands. This MOU establishes ADOT and FHWA as cooperating agencies in the land use planning EIS process (Cooperating Agency MOU, Agreement AZ-910-0417, 2004). The 2003 MOU was again amended in late 2008 (Amendment No. 4, 2008 to 2003 MOU and Operating Agreement No. AZ-931-0309). Amendment No. 4 revised the Assignment, Reversion and Termination Section of Title 23 ROW projects.

Agency Coordination

The MOU provide a framework for interaction between the agencies, development of common standards and dispute resolution. In Arizona, the *Guidelines for Highways on Bureau of Land Management and US Forest Service Lands* (2008) provides guidance for the design, construction and maintenance of ADOT projects on lands managed by BLM and the USFS. The guidelines presented in the Manual are intended to communicate philosophy, approach and examples from which new applications and techniques can be developed. Applicable requirements are incorporated into construction designs and construction contracts.

ADOT also works on an individual basis with the six national forests within Arizona. The Tonto National Forest (TNF) has been active in developing stormwater management practices and standards by serving on the original Stormwater Management Team and the Erosion Control, Construction Stormwater Advisory Team (SWAT). See section 3.2.1 for additional information on the SWAT. ADOT meets as needed with the USFS Southwestern Region. ADOT anticipates that close coordination on stormwater issues will continue with both the USFS and BLM.

2.3 Fiscal and Organizational Resources

2.3.1 Fiscal Resources

There are several sources available for funding ADOT's stormwater programs, including ADOT's *Five Year Transportation Facilities Construction Program: Fiscal Years 2009–2013*, the Highway Maintenance Program within the Intermodal Transportation Division and the ADOT Administrative Budget.

2.3.1.1 Five-Year Transportation Facilities Construction Program

ADOT's *Five-Year Transportation Facilities Construction Program* is a funding source used when a stormwater issue or concern is related to a transportation project in the existing construction program. The Project Development and Delivery program includes

both development (design and preconstruction activities) and construction. Stormwater activities include review and selection of permanent and temporary BMPs.

The *Five-Year Transportation Facilities Construction Program* is reviewed on an annual basis. New projects and modifications are made monthly to the existing construction program. Several federal, state, and local sources fund the construction program, with the highway users tax as the major funding source. The project approval process consists of identification of the project and funding requirements and submittal to the Priority Planning Advisory Committee (PPAC), and then, in turn, to the State Transportation Board for final approval. The program is adopted July 1 of each year. Expenditures on stormwater controls vary by project.

2.3.1.2 Highway Maintenance Program

Stormwater issues related to highway maintenance are currently funded under the Highway Maintenance Program. This program is entirely state-funded. Maintenance issues and costs are identified and submitted for approval to the Arizona Legislature in August of each year. Funds for new maintenance projects are received on July 1 of the following year. A portion of this budget is spent to maintain stormwater control structures such as detention impoundments (basins), drainage structures, canals, tunnels and pumphouses.

MS4 Program Expenditures

ADOT's Phase I MS4 Permit went into effect in late 1999. Expenditures directly attributable to the MS4 program have been made by ADOT since fiscal year 1999–2000. Details on those expenditures are summarized in the MS4 Permit No. AZS000018 Annual Reports. To date the Arizona Legislature has not allocated any additional funds for ADOT's stormwater program.

2.3.1.3 Administrative Budget

An additional funding source is ADOT's Administrative Budget, which is state-funded under appropriations by the Arizona Legislature. The process is identical to the Highway Maintenance Program. The Administrative Budget provides stormwater management support services such as data management, employee training, research, drafting and facilitating joint project agreements with local jurisdictions, community relations, project planning and budgeting assistance and providing on-call consultants when projects require consultants to be brought on quickly. This budget also includes funds for permanent stormwater controls located at ADOT facilities.

2.3.1.4 Other Funding Sources

ADOT actively seeks other sources of funding for special stormwater projects. These include Transportation Enhancement projects, which are predominantly funded by FHWA with a local match by a sponsoring agency. FHWA recently included a category of enhancement projects for environmental improvements that would cover stormwater pollution prevention activities.

Stormwater research projects may be undertaken by the Arizona Transportation Research Center (ATRC) or through grant applications. ATRC administers ADOT's research efforts on transportation-related projects. A Research Council, composed of leading operations personnel from a wide range of ADOT sections representing the diverse interests of the agency, provides technical oversight of the research program. To ensure that research is responsive to ADOT needs, a Steering Committee provides policy guidance for the overall research effort.

2.3.2 Organizational Resources

Overall responsibility for stormwater Permit compliance resides with the Water Quality Manager in the Office of Environmental Services (OES). Many other sections of ADOT have specific stormwater responsibilities under the permit. To ensure that the interests of these sections are adequately considered, and for statewide consistency, ADOT created SWATs to coordinate the activities necessary for the creation and implementation of the SSWMP. These teams are made up of a cross-section of personnel engaged in stormwater activities.

The SWATs are organized along functional responsibilities within ADOT, such as design, construction, maintenance, and training (see Stormwater Advisory Teams, section 3.2). Communication is facilitated by the Water Quality Manager.

Environmental Stewardship

President Bush issued Executive Order (EO) 13274 on September 18, 2002, to enhance environmental stewardship and streamline the decision-making process in connection with major transportation projects. The EO instructs the federal DOT to select priority projects and establishes an interagency task force to coordinate expedited decision-making across the federal agencies (Bush 2002). In response to the EO, FHWA, the state highway agencies, private industry, the Transportation Research Board (TRB), and the American Association of State Highway Transportation Officials (AASHTO) established a partnership to explore environmental efficiencies and stewardship initiatives. One of the initiatives pursued by TRB within this partnership included creation of several stormwater research projects through the National Cooperative Highway Research Program (NCHRP), an organization of state departments of transportation. This program has been instrumental in establishing research programs on highway and transportation systems, focusing on facility stormwater runoff impacts to surface and ground water. ADOT relies on this research data to focus the SSWMP activities on areas of concern.

To address environmental stewardship issues in Arizona, in 2003, as a "Research Project to Develop Strategies That Best Integrate Environmental Stewardship into the Department's Business Practices," ADOT leadership retained the AASHTO Center for Environmental Excellence to conduct an environmental performance evaluation of ADOT. The evaluation included:

- evaluating the environmental performance of ADOT's planning, design, construction, maintenance, and operational business practices across its six divisions and for all modes of transportation under its jurisdiction
- establishing the priority areas of high environmental opportunity and/or risk

- documenting the results of the evaluation and prioritization in a technical memorandum
- recommending a targeted scope of work for potential benchmarking of other transportation organizations (AASHTO Center for Environmental Excellence 2003)

Following receipt of the AASHTO study, ADOT commissioned an additional study to obtain input on how to best organize and manage environmental practices and policy. The study was conducted by a third-party consultant under the oversight of a committee consisting of representatives of all ADOT environmental activities and groups. The study was completed in 2005 and resulted in the creation of OES within the Intermodal Transportation Department (ITD) in 2006. The OES is currently responsible for the oversight of all stormwater management activities (see section 3.1.1).

3.0 Program Management

This section presents the program management structure for ADOT's stormwater pollution prevention program, including organization roles and responsibilities, internal support organizations, and stormwater documents.

3.1 ADOT Organizational Roles and Responsibilities for Stormwater Management

ADOT is the state's public agency to plan, develop, maintain, and operate facilities for the efficient movement of people and goods by surface and air throughout the state. ADOT's mission is to provide a safe, efficient, and cost-effective transportation system.

ADOT receives guidance in capital planning and program development from a seven-member Transportation Board of the State of Arizona Department of Transportation (Transportation Board) appointed by the Governor. The Transportation Board is responsible for the annual update of the *Five-Year Transportation Facilities Construction Program* and awards contracts each month for highway projects. The program is a result of a transportation assessment determining the best ways to safely and effectively move goods, services and people throughout Arizona.

ADOT's stormwater activities are guided by policy established by the Director's Office. The OES was created within the ITD in 2006 and is responsible for the overall administration of the stormwater program and other environmental programs. The OES is supported in its stormwater activities by the Water Quality Group, District Environmental Coordinators (DECs) and various departments within ADOT associated with construction, industrial, and MS4 activities (see Figure 3.1 –ADOT organization chart).

3.1.1 Office of Environmental Services

The OES oversees all environmental programs within ADOT (see Figure 3.2 – ITD Organizational Chart). The OES ensures compliance with local, state and federal environmental laws during the development, construction, operation and maintenance of ADOT facilities. The OES is divided into five groups: Compliance, Environmental Planning Group (EPG), Natural Resources Management, Plans and Permits, and Water Quality. Two of these groups have Clean Water Act (CWA) responsibilities: EPG and Water Quality.

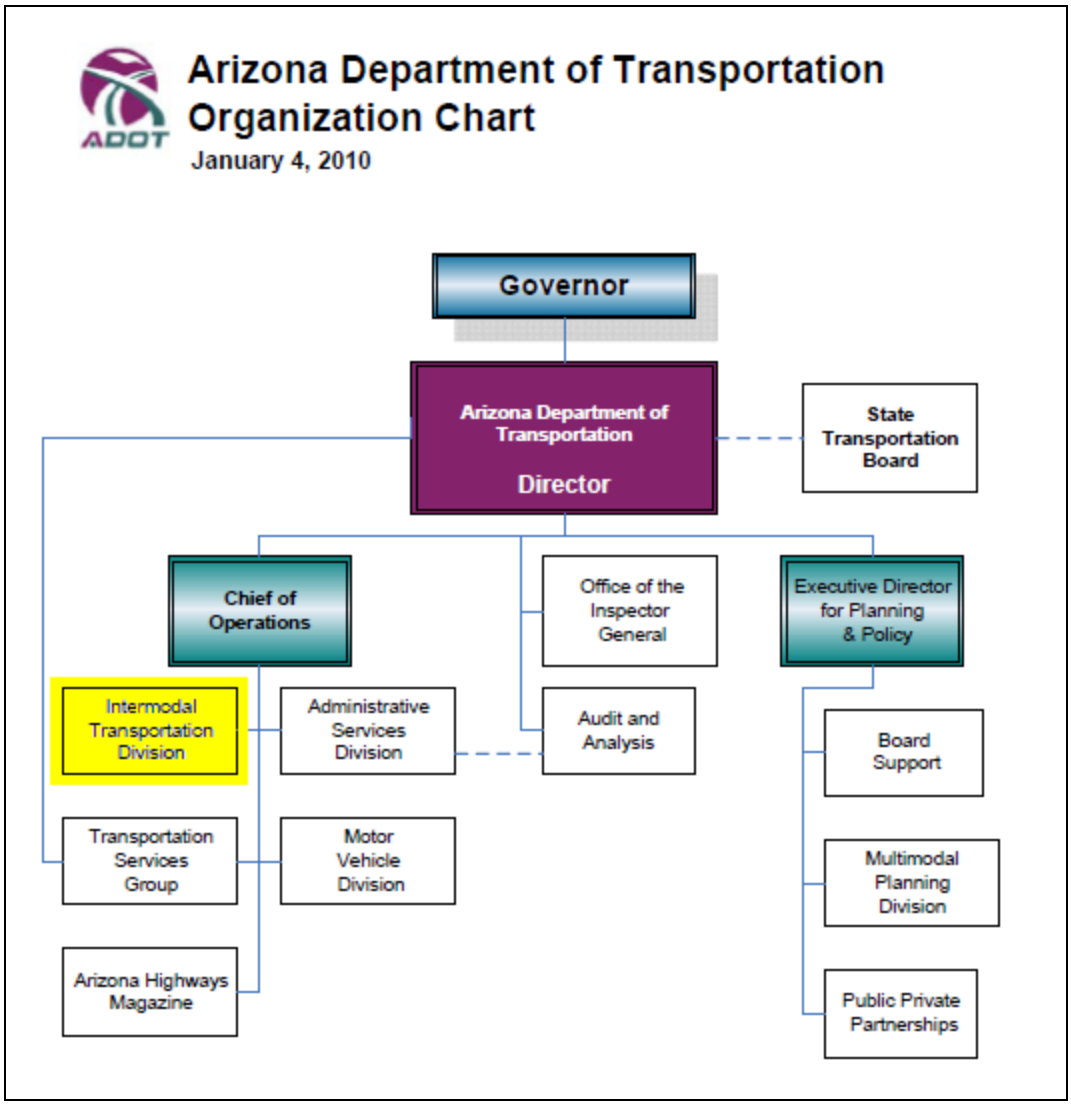

Figure 3.1 – ADOT Organizational Chart

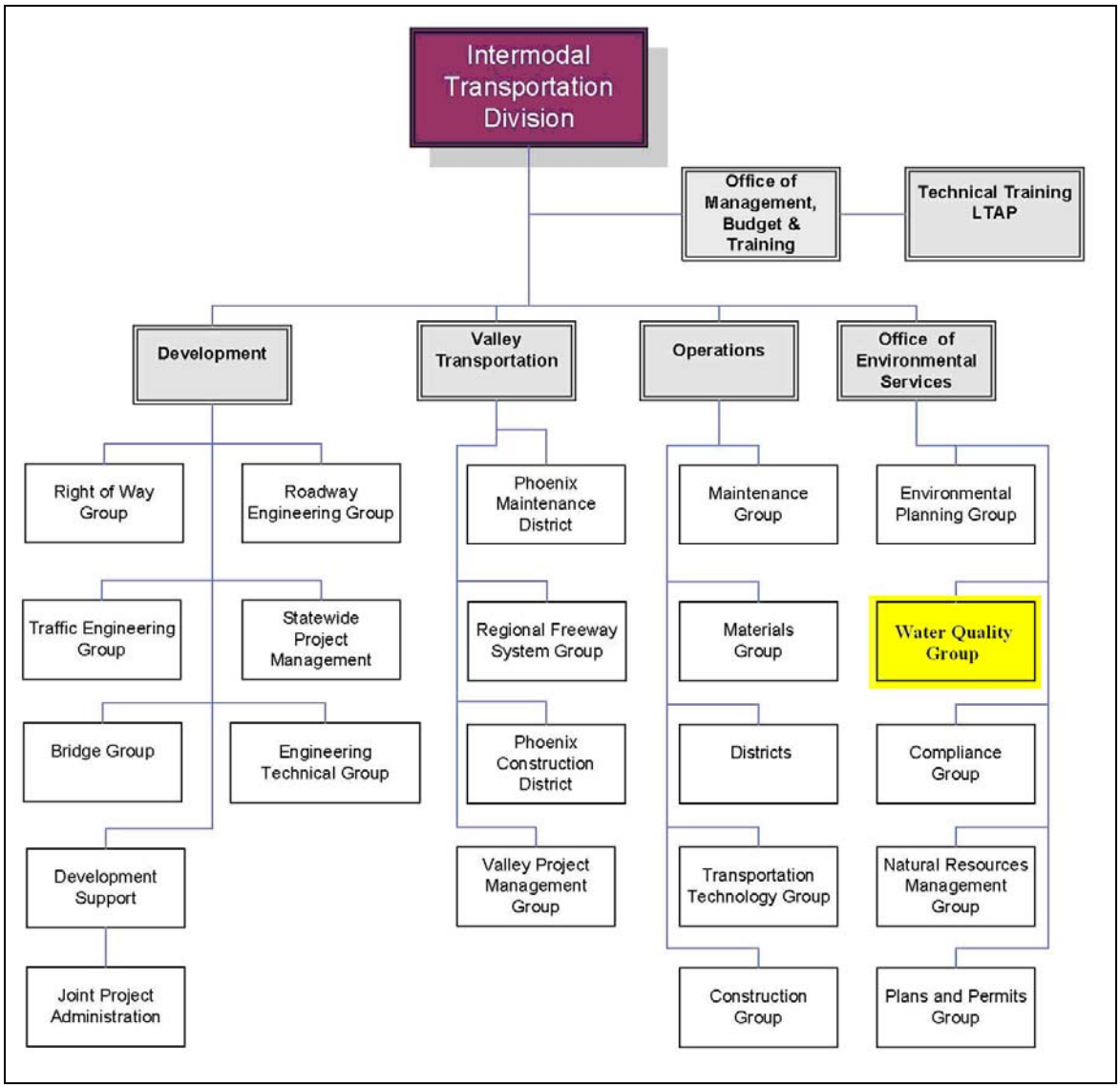

Figure 3.2 – ITD Organizational Chart

Water Quality Group

The Water Quality Group provides information regarding regulatory requirements for surface and groundwater for all ADOT activities and participates in all Water Quality Specification revisions including requirements for the stormwater program and aquifer protection program. The group is the lead agent within ADOT implementing stormwater permits, working to develop future water quality policies, monitoring changes in both federal and state regulations and negotiating with ADEQ. This Group oversees all requirements of the permit, including preparing and implementing SWPPPs for ADOT facilities, mapping outfalls and stormwater management structures, and developing an illicit discharge monitoring program. The Group reviews inspection reports for materials mining and stockpile sites, industrial SWPPPs, the MS4 SSWMP and is largely responsible for compiling data for the Annual Report.

Water Quality Manager

The Water Quality Manager oversees the Water Quality Group and develops, implements and oversees the statewide transportation roadway and facility environmental water quality program for ADOT. The Manager consults with ADOT leadership and field staff on a variety of environmental programs with a primary focus on the implementation of water quality permits and monitoring of quality of water entering, remaining on, and leaving ADOT's roadway ROW and facilities. The Manager coordinates with other jurisdictions on water conveyance, water drainage/conduits, or water issues crossing political boundaries. Internally, the Manager helps to resolve technical problems by implementing processes that meet or exceed environmental requirements. The Manager provides assistance and guidance on construction and maintenance projects, erosion control, water retention, water conveyance systems, rest area wastewater treatment, aquifer protection permits, dry wells, etc.

3.1.2 District Environmental Coordinators

Because of the size and complexity of ADOT's MS4, there are DECs located in most ADOT districts to assist in stormwater compliance and program oversight (not present in Phoenix Construction). DECs are responsible for activities in the nine engineering and maintenance districts: Flagstaff, Globe, Holbrook, Kingman, Prescott, Safford, Tucson, Yuma, and Phoenix (two district offices) (See Figure 3.3–MS4 and District Map). They report to the District Engineers and acquire information from the Water Quality Manager. The DECs are responsible for oversight and guidance of the OES environmental program including assisting with construction, operation and maintenance of the state highway facilities within their jurisdiction. These duties include ensuring SSWMP compliance during construction and post-construction. As projects move through the design and construction stages, the DECs use their local knowledge to provide recommendations for BMPs. They also provide oversight of maintenance BMPs and ADOT stormwater inspections. DECs can initiate some smaller environmental projects called District Minor Projects.

Flagstaff District

The Flagstaff District includes a portion or all of four Native American reservations and three counties (Coconino, Navajo, and Yavapai). It also has portions of three national forests (Coconino, Kaibab, and Prescott) and BLM land within its boundaries. The Flagstaff urbanized area has been designated a Phase II MS4.

Globe District

The Globe District contains portions of Gila, Apache, Graham, Greenlee, Pinal, Maricopa, and Navajo counties. It also includes a portion or all of three Native American reservations, three national forests (Apache-Sitgreaves, Tonto, and Coronado), and BLM land within its boundaries.

Holbrook District

The Holbrook District includes national parks, national monuments, BLM land, and state parks. The District also includes a portion or all of two Native American reservations as well as Apache-Sitgreaves and Coconino national forests in Coconino, Navajo, and Apache counties.

Kingman District

The Kingman District has all or a portion of four counties within its boundaries: Mohave, Yavapai, Coconino, and La Paz. The District also includes a portion or all of three Native American reservations, Prescott National Forest, and BLM lands within its boundaries. The Lake Havasu urbanized area has been designated a Phase II MS4.

Prescott District

The Prescott District includes portions of Maricopa, Gila, Coconino, Yavapai, La Paz, and Navajo counties. It also includes a portion or all of three Native American reservations, Prescott and Coconino national forests, and BLM lands within its boundaries. The Camp Verde, Cottonwood, Prescott, Prescott Valley, and Sedona urbanized areas have been designated Phase II MS4s.

Safford District

The Safford District operates within the Greenlee, Graham, and Cochise County geographic area of southeastern Arizona. It also includes a portion or all of one Native American reservation, Coronado and Apache-Sitgreaves national forests, and BLM lands within its boundaries. The Douglas and Sierra Vista urbanized areas have been designated Phase II MS4s.

Tucson District

The Tucson District has a portion or all of five Native American reservations within its boundaries as well as five state parks, four national monuments, two national wildlife refuges, Kitt Peak National Observatory, Tumacacori National Historic Park and Coronado National Forest. Metropolitan Tucson is a designated Phase I MS4. The Marana, Nogales, Oro Valley, and South Tucson urbanized areas have been designated Phase II MS4s.

Yuma District

The Yuma District contains all of Yuma and parts of La Paz and Maricopa counties. A portion or all of three Native American reservations, BLM, and military lands are included in the Yuma District. The Yuma urbanized area has been designated a Phase II MS4.

Phoenix Construction District

The Phoenix Construction District is the largest construction entity in the State. It is responsible for administering projects across the Valley for Interstate Highways, State Highways and projects associated with the Regional Freeway System and the Regional Transportation Plan.

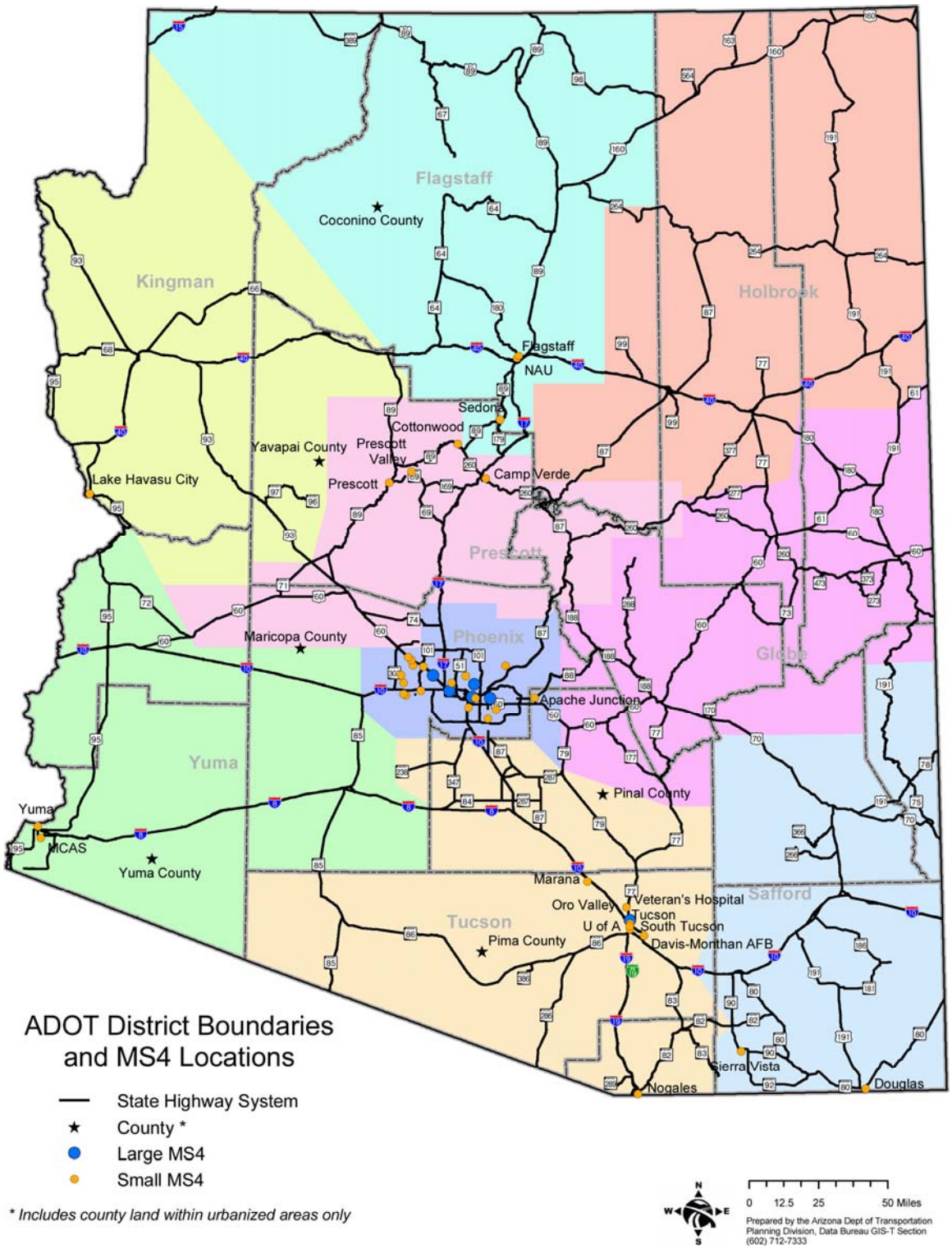

Figure 3.3 – MS4 and District Map

Phoenix Maintenance District

The Phoenix Maintenance District services 3,750 square miles centered on metropolitan Phoenix. The majority of the district is found within Maricopa County, and the balance is in Pinal County. The Maintenance District partners with incorporated cities, towns, two Native American nations, counties, and state and federal agencies.

3.1.3 Construction

Construction activities that are owned, operated, or contracted by ADOT must comply with the provisions of the Permit, including any construction activities that disturb more than one acre or less than one acre but is part of a larger development that ultimately disturbs more than one acre. Additionally, maintenance projects that disturb greater than five acres will be considered under the construction requirements. Bulk material sources in support of construction activities are discussed in section 3.1.4. Many ADOT departments are impacted by construction requirements; however activities can be generally organized into three categories: management, monitoring and training.

Management

Construction site management includes SWPPP implementation, construction yard oversight, BMP implementation and maintenance, site inspections and reporting. Operators under contract with ADOT are required to apply for coverage under and comply with the appropriate (NPDES or AZPDES) CGP. Each District is responsible for administering construction projects within their jurisdiction. The Construction Group administers all contractor payments, contract administration, and quality control of construction activities. The Construction Group also develops and/or approves all policies, procedures, and specifications related to construction activities.

Monitoring

The Permit requires all construction sites within ¼ of a mile of an impaired or unique receiving water to conduct stormwater quality monitoring. The monitoring program must be included in the construction SWPPP. The contractor on a given project is responsible for conducting monitoring. Monitoring results are reported to the Resident Engineer.

Training

Training is required for all ADOT staff directly involved in construction site inspections as well as all staff directly involved in controlling stormwater runoff from new development or redevelopment. Training includes general stormwater awareness; requirements of the MS4 and CGP Permit; structural and non-structural BMPs; and design standards, maintenance requirements, and stormwater planning. Training is required for all new employees within 12 months of hire and refresher training at least once every three years for all employees. Construction contractor training is discussed in section 4.1.2.

3.1.4 Industrial

ADOT industrial facilities are covered by the Permit. Industrial facilities covered by the Permit include Material Sources, the Grand Canyon National Park Airport, the Durango

Sign Factory, and the Print Shop. Requirements for all these facilities include development and implementation of a SWPPP and BMPs, stormwater monitoring, employee training, and site inspection.

The Water Quality Group is responsible for developing site-specific SWPPPs for each facility and yard meeting all the requirements in section 4.0 of the Permit. Facility and yard personnel are responsible for SWPPP implementation including site inspections, with oversight and assistance from the Water Quality Group. Additional guidance is provided in the *Maintenance and Facilities Best Management Practices Manual* (see section 3.3). Training is conducted by the DEC with oversight from the Water Quality Group.

All monitoring required by the Permit is conducted by industrial facility personnel following the requirements of the site-specific SWPPP, *Stormwater Monitoring Guidance Manual for Industrial Activities*, and *Quality Assurance Manual (QAM)* (see section 3.3). Monitoring results are reported to the Water Quality Manager for inclusion in the Annual Report.

Exceptions to this general organization of requirements and responsibilities are listed below:

Material Sources

The Permit applies wherever ADOT has exclusive use of a material source or whenever ADOT is actively operating at a joint use site. For joint-use sites, an authorized representative of ADOT or its contractor will accept a copy of the SWPPP by becoming a signatory to the primary permit holder's document. At some locations it may be necessary to update the SWPPP with project-specific details or activities. For all areas, whether exclusive or joint-use, ADOT or its contractors will be responsible for development and implementation of the SWPPP for areas where ADOT has operational control. ADOT maintains an inventory of material sources that are owned by or licensed to the State and used for construction and maintenance of the State Highway System. The inventory consists of four categories: 1) sites that are actively used; 2) sites that are inactive and may be reclaimed or the permit renewed; 3) sites undergoing reclamation; and 4) stockpile sites. For information regarding any material source, contact the ADOT Materials Group.

Grand Canyon National Park Airport

ADOT, airport tenants and other fixed-base operations under ADOT's control must comply with conditions of the Permit. The Administrative Services Division is responsible for the overall operation and maintenance of the Airport. Permit requirements include developing the SWPPP, implementing and maintaining BMPs, conducting inspections, and delivering training.

Durango Sign Factory

The Durango Sign Factory is located in downtown Phoenix in the vicinity of the Phoenix Equipment Services Yard and Phoenix Maintenance Yard. The Durango Sign Factory

has exposure to stormwater through vehicle and equipment storage, bulk material storage, loading and unloading areas, solid waste management, and outdoor manufacturing. A SWPPP was prepared in February 2009 and regular inspections are performed by pollution prevention team personnel.

Phoenix Administrative Headquarters Print Shop

The Print Shop, co-located with the Phoenix Administrative Headquarters, meets the condition of "no exposure." Although a SWPPP and inspections are not required, BMPs, training, and confirmation of no exposure remain applicable and are reported in the Annual Report. The Water Quality Group confirms the status of no exposure.

3.1.5 MS4

To comply with the Permit, ADOT has responsibility to implement and enforce encroachment permits, conduct monitoring, and inspect and maintain ADOT's MS4 throughout the state, train employees, and conduct public education and outreach.

Encroachment Permits

The Permit SWAT is responsible for providing the link between the Water Quality Group, the encroachment permit program, and the Right of Way Group. Encroachment permits are handled at the District level, with a third party applying to the appropriate District office for the right to enter or connect to the ADOT system. The Right of Way Group acquires all property rights necessary for construction and maintenance of the highway system to include ROW for facilities and other transportation-related real estate requirements.

Monitoring

Twice annual wet weather monitoring is required by the Permit. Monitoring is typically conducted by contractors following the requirements of the permit, *Stormwater Monitoring Guidance Manual for MS4 Activities*, and the *QAM* (see sections 3.3 and 5.4.1). Analytical results are reported to the Water Quality Manager for inclusion in the Annual Report.

Inspect and Maintain MS4

Inspecting, repairing, maintaining, and cleaning of roadways and the various stormwater features is conducted regularly by the Maintenance Group. The Group also implements appropriate BMPs to reduce the potential for pollutant releases to the MS4 or waters of the United States (WUS) following guidelines in the *Maintenance and Facilities BMP Manual* and *Erosion and Pollution Control Manual* (see section 3.3).

3.1.6 Maintenance Yards

ADOT maintenance yards are covered by the Permit. However, there are 18 maintenance yards: Avondale, Broadway (in Tempe), Douglas, Durango (in Phoenix), Phoenix Equipment Services, Flagstaff, Grand Avenue Landscape (in Phoenix), Little Antelope (in Munds Park), Mesa Country Club, Mesa Recker Road, Nogales, North Phoenix, Prescott Valley, Statewide Striping (in Phoenix), Superior, Superior Storage and Fuel,

Tucson Grant Road and Yuma that require an additional level of protection. Requirements for all these facilities include development and implementation of a SWPPP and BMPs, stormwater monitoring, employee training, and site inspection.

The Water Quality Group is responsible for developing site-specific SWPPPs for each facility and yard meeting all the requirements in section 4.0 of the Permit. Facility and yard personnel are responsible for SWPPP implementation including site inspections, with oversight and assistance from the Water Quality Group. Additional guidance is provided in the *Maintenance and Facilities Best Management Practices Manual* (see section 3.3). Training is conducted by the DEC with oversight from the Water Quality Group.

All monitoring required by the Permit is conducted by facility personnel following the requirements of the site-specific SWPPP, *Stormwater Monitoring Guidance Manual for Industrial Activities*, and *Quality Assurance Manual (QAM)* (see section 3.3). Monitoring results are reported to the Water Quality Manager for inclusion in the Annual Report.

3.2 Internal Stormwater Support Organizations

Ten SWATs were formed in 2004 and were later consolidated into eight SWATs in 2009. SWATs are charged with developing a common understanding among key staff about the importance of developing a SSWMP and individual permit. Additional organizations involved with preserving stormwater quality and implementing the stormwater program are the Water Quality Group and the Roadside Development Section.

3.2.1 Construction SWAT

Leader: Paul Hurst
This SWAT includes personnel from ADOT Districts, Contracts and Specifications Section, Construction Group, and the Operations Program. The Construction SWAT reviews construction documents associated with the design, installation, maintenance, and enforcement of construction BMPs, as well as modification of contract specifications for contractor erosion and sediment control requirements. This SWAT uses the ADOT *Erosion and Pollution Control Manual* (section 3.3.1) for guidance and is responsible for updating the manual along with the Water Quality Group and Roadside Development Section. The Construction SWAT works on project compliance checklists and includes AZPDES training for employees and contractors.

3.2.2 Maintenance/Facilities SWAT

Leader: Marwan Aouad
This SWAT includes personnel from the various Districts, Central Maintenance, Natural Resources Management Group, Transportation Services Group, Physical Plant Operations, and the Traffic Operations Sign Factory. This SWAT coordinates with the Maintenance Servant Leadership Team (MSLT) who is comprised of two representatives from each district. Representatives include District Engineers, maintenance engineers,

superintendents, supervisors and/or maintenance employees. The purpose of the MSLT is to discuss standards and practices for conducting maintenance activities. This SWAT uses the ADOT PeCoS (PErformance COntrolled System) to categorize, track, and describe maintenance activities. The PeCoS system is also used as a basis for selecting appropriate maintenance activities BMPs, implementing the BMPs and providing training to maintenance personnel. This SWAT also includes facility maintenance representatives and includes selection and implementation of appropriate facility BMPs.

3.2.3 Materials SWAT

Leader: Leigh Waite
This SWAT includes personnel from the Materials Group and various Districts. The focus of the SWAT is to review material source activities for coverage under the Permit. ADOT-licensed or owned material sources include mining and stockpile sites, which are generally considered industrial facilities and outdoor bulk storage, respectively. Materials in these sites that are exposed to the elements include reclaimed asphalt or millings, rip-rap, borrow or fill dirt, cinders, and sand and gravel. Because these sites are typically large, disturbed areas in rural and unmanned locations statewide, perimeter controls and various other BMPs are implemented to preclude sediment transport and off-site discharge. The Materials SWAT recommends stormwater policy to OES for sites under the administration or management of the Materials Group, as well as, reviews state and federal guidance and policy that may affect the management of these sites.

3.2.4 Design SWAT

Leader: Shajed Haque
This SWAT includes personnel from Roadway Engineering (Drainage Design, Roadway Design and Roadside Development Section), Operations and Statewide Project Management Group. This SWAT monitors the methodology for identifying projects that require post-construction stormwater quality controls and researches changes in BMP design over time. The Design SWAT uses the ADOT Roadway Design Guidelines as they pertain to environmental considerations and the development of post-construction site runoff. This SWAT has undertaken the development of the ADOT *Post-Construction BMP Manual*.

3.2.5 Permits SWAT

Co-leader: Bill Harmon
Co-leader: Mike Kondelis
This SWAT includes personnel from the ADOT Districts and Central Permits. The SWAT is responsible for the encroachment permit program. Tasks include developing a model joint project agreement for stormwater projects with adjoining local jurisdictions and model encroachment permit language developed in conjunction with the Design SWAT for those entities wishing to discharge to ADOT stormwater structures.

3.2.6 Information Management SWAT

Leader: Mike Traubert

This SWAT includes personnel from Operations and the Data Management and Analysis Section. The SWAT assists in creating stormwater system maps and coordinates with other SWATs on the data being produced to create a central repository for that information.

3.2.7 Outreach SWAT

Leader: Stephanie Brown
This SWAT includes personnel from Community Relations and OES. The SWAT identifies and implements outreach activities to inform a broad cross section of the public about stormwater, ADOT's role in stormwater management, and what the public can do to assist. The SWAT also solicits public involvement and input into the ADOT stormwater program.

3.2.8 Training SWAT

Leader: Annie Parris
This SWAT includes the leaders of the other SWATs. This SWAT oversees a coordinated stormwater training program to ensure that every ADOT employee involved in stormwater pollution prevention is aware of the stormwater requirements and regulations.

3.2.9 Roadside Development Section

The Roadside Development Section provides landscape architectural and environmental technical design direction and expertise for ADOT projects statewide. Technical direction and expertise include development of plans and specifications and review of consultant plans involving: aesthetic enhancements and design, environmental mitigation and landscape ecological restoration, stormwater quality and erosion control, seeding and revegetation, native plant salvage and replanting, landscape and irrigation design.

3.3 Stormwater Documents

ADOT maintains a Stormwater Library for ADOT employees and the public. The Stormwater Library is a virtual library (available at www.azdot.gov) and includes this SSWMP and other documents required by the Permit. Employees and members of the public who do not have internet access but want to view Library documents can contact OES at 602-712-8353 to make arrangements. The Library is maintained by the Water Quality Group. The website will be equipped with a counter to monitor the number of visits to the Library. The Water Quality Group will report the number of visits to the library site in the Annual Report.

Documents in the Library are reviewed and updated annually, if needed, as required by the Permit. Changes to Library documents are summarized and reported in the Annual Report. Table 3-1 – ADOT Document Update Responsibilities, lists the documents included in the Library as well as the SWAT/Group responsible for document updates.

Table 3.1 - ADOT Document Update Responsibilities	
Document	**Updated By**
Erosion and Pollution Control Manual	Water Quality Group, Roadside Development Section, and Construction SWAT
Maintenance and Facilities BMP Manual	Water Quality Group, Maintenance SWAT
Post-Construction BMP Manual	Water Quality Group, Design SWAT
Arizona Department of Emergency Management, ESF-10 Oil and Hazardous Materials Annex	Arizona Department of Emergency Management
Stormwater ERP	Water Quality Group
Quality Assurance Manual	Water Quality Group
Stormwater Monitoring Guidance Manual for MS4 Activities	Water Quality Group
Stormwater Monitoring Guidance Manual for Construction Activities	Water Quality Group, Construction SWAT
Stormwater Monitoring Guidance Manual for Industrial Activities	Water Quality Group, the Materials and Maintenance SWATs

3.3.1 Erosion and Pollution Control Manual

This manual is required by Permit section 3.2.2.1(c). The ADOT *Erosion and Pollution Control Manua*l is used to provide guidance on selection of BMPs, preparation of SWPPPs and submittal of NOIs and NOTs. The manual also includes BMPs for permanent concentrated flow conveyances such as rock outlet protection for cross-culverts. The manual is used to help ADOT personnel and contractors:

- Reduce erosion potential
- Reduce off-site sedimentation
- Prevent stormwater contamination from construction operations

The manual is reviewed annually and updated as needed through funding by the Roadside Development Section in coordination with the Water Quality Group and Construction SWAT. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.2 Maintenance and Facilities Best Management Practices Manual

The ADOT *Maintenance and Facilities Best Management Practices Manual* is required by Permit section 3.2.3.1(c). The manual outlines ADOT's procedures for complying with water quality regulations and permit requirements at ADOT facilities and during maintenance activities. The manual is used by ADOT personnel for developing and

implementing site-specific SWPPPs as well as BMPs during individual maintenance activities that may not require a SWPPP.

The manual is reviewed annually and updated as needed by the Water Quality Group in conjunction with the Maintenance SWAT. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.3 Post-Construction Best Management Practices Manual

This manual, required by Permit section 3.2.5.1, documents the post-construction BMPs that ADOT uses to comply with Permit requirements. Specifically, this manual:

- Identifies factors for consideration during selection of post-construction BMPs.
- Provides design guidance for post-construction BMPs.

The manual is reviewed annually and updated, as needed, through funding by the Water Quality Group in conjunction with the Design SWAT. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.4 ADEM Plan, ESF-10 Oil and Hazardous Materials Annex

The Arizona Department of Emergency Management (ADEM) Plan meets the requirement of Permit section 3.2.3.5(b). The plan provides ADOT with detailed information for the effective coordination of state, local, federal and private resources involved in Hazardous Materials emergency operations by: identifying the authorities, roles, and responsibilities of state agencies; establishing coordination, command and control procedures; and describing criteria and procedures for requesting state/federal assistance.

Although considered part of the stormwater library, due to sensitive content this document is not available to the public. ADOT employees who need access to the document can contact the Southern Regional Safety Consultant and Emergency Response Supervisor for more information.

The ADEM is responsible for maintaining this document.

3.3.5 Stormwater Enforcement Response Plan

Although not required by the permit, the *ERP* is provided to increase public awareness of the enforcement steps available to ADOT. The *ERP* provides ADOT with a set of consistent procedures for enforcing the requirements of the Permit. The *ERP* includes enforcement procedures designed to encourage a timely response by the contractor or other discharger. Implementation of the *ERP* will ensure a consistent enforcement response throughout the state, avoiding confusion, delays, and disputes over enforcement for stormwater pollution prevention.

The *ERP* establishes the enforcement program to meet requirements in the Permit regarding investigating reports of illicit discharges and initiation of enforcement actions, sections 3.2.3.3 (b and c) and section 3.2.3.4(b), respectively.

The manual is reviewed annually and updated as needed by the Water Quality Group. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.6 Quality Assurance Manual

The *QAM* is required by Permit section 8.3.2. The purpose of the *QAM* is to document ADOT policies and procedures ensuring adequate quality assurance/quality control (QA/QC) for stormwater monitoring. The policies and procedures described are intended to ensure that stormwater analytical data meet the requirements of the Permit.

ADOT's Permit includes three types of monitoring: construction site discharges to unique or impaired waters (Permit section 8.4), industrial facility discharges (Permit sections 8.5 and 8.6) and MS4 wet weather discharges (Permit section 8.7). The *QAM* applies to all monitoring conducted under the Permit. Additional guidance, direction and procedures for monitoring are found in the following documents:

For construction activities:	*Stormwater Monitoring Guidance Manual for Construction Activities* and site-specific SWPPPs developed for each construction site
For industrial activities:	*Stormwater Monitoring Guidance Manual for Industrial Activities* and site-specific SWPPPs for ADOT maintenance yards and industrial facilities
For MS4:	*Stormwater Monitoring Guidance Manual for MS4 Activities*

In addition, there may be third-party QAMs, prepared by laboratory and/or sampling service providers, whenever these services are subcontracted outside of ADOT.

The *QAM* is reviewed annually and updated as needed by the Water Quality Group. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.7 Stormwater Monitoring Guidance Manual for MS4 Activities

The *Stormwater Monitoring Guidance Manual for MS4 Activities*, required by Permit section 3.2.3.2(c), provides the procedures used by ADOT personnel to conduct Permit-required monitoring associated with MS4 activities. This monitoring includes dry weather screening for illicit connections and illicit discharges and seasonal wet weather monitoring.

The manual is reviewed annually and updated, as needed, by the Water Quality Group. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.8 Stormwater Monitoring Guidance Manual for Construction Activities

The *Stormwater Monitoring Guidance Manual for Construction Activities* is required by Permit section 8.4.2. The manual is used by ADOT and its contractors to ensure construction stormwater monitoring is conducted according requirements under ADOT's Permit and the AZPDES CGP.

ADOT and its Contractors use the manual in the planning and implementation of stormwater monitoring programs for ADOT construction activities. The guidance provided in the manual applies to all permitted construction activities that are within ¼ mile of a unique, impaired, or any sensitive project as deemed necessary by ADOT. The main objective of the manual is to provide consistency in monitoring methods among ADOT's various construction sites, as well as consistency in monitoring protocols over time. Such consistency is essential to provide for data comparability, accuracy and precision among ADOT construction site monitoring programs. Therefore, the manual features detailed procedural information for QA/QC purposes.

The manual is reviewed annually and updated as needed by the Water Quality Group in conjunction with the Construction SWAT. Changes to the manual are summarized and tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.9 Stormwater Monitoring Guidance Manual for Industrial Activities

The *Stormwater Monitoring Guidance Manual for Industrial Activities*, required by Permit section 8.5.1, provides guidance to ADOT personnel at industrial facilities and maintenance yards with monitoring requirements in the Permit. The manual has procedures for visual and analytical monitoring, including reporting the results.

The manual is reviewed annually and updated as needed by the Water Quality Group in coordination with the Maintenance and Materials SWATs. Changes to the manual are summarized in a table and are tracked for inclusion in the Annual Report by the Water Quality Group.

3.3.10 Other Documents

3.3.10.1 Industrial Facility and Maintenance Yard SWPPPs

Permit section 4.2 requires industrial facilities and certain maintenance yards to develop and implement site-specific SWPPPs. The industrial facilities include Material Sources, the Grand Canyon National Park Airport, the Durango Sign Factory, and the Print Shop. There are 18 maintenance yards with SWPPPs: Avondale, Broadway (in Tempe), Douglas, Durango (in Phoenix), Phoenix Equipment Services, Flagstaff, Grand Avenue Landscape (in Phoenix), Little Antelope (in Munds Park), Mesa Country Club, Recker Road, Nogales, North Phoenix, Prescott Valley, Statewide Striping (in Phoenix),

Superior, Superior Storage and Fuel, Tucson Grant Road and Yuma. Each site-specific SWPPP identifies sources of potential stormwater pollutants, identifies measures to minimize and control pollutants from these sources, lists monitoring locations (if applicable), and identifies the responsible parties for on-site SWPPP implementation. Each maintenance yard is inspected quarterly and annually reported.

SWPPPs are required to be updated on an as-needed basis by members of the Pollution Prevention Team for each facility. Maintenance Yard SWPPPs are developed by the Water Quality Group with input from the local DEC and maintenance yard staff.

3.3.10.2 Annual Reports

Each year of the Permit term (2008-2013), ADOT is required by Permit section 9.1.1 to submit an Annual Report by September 30th to ADEQ. In negotiations after the Permit was issued, ADEQ allowed ADOT to submit the Annual Report by November 30th in recognition of the size of ADOT's Permit area.

The report summarizes the progress of the SSWMP, findings of monitoring activities, details on employee training activities, actions taken under the *ERP* and other activities conducted throughout the year. Specific requirements and attachments required in each Annual Report are identified in section 9 of the Permit.

4.0 Best Management Practices

BMPs are Permit conditions used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. BMPs may include a schedule of activities, prohibition of practices, maintenance procedures, or management practices. BMPs may include, but are not limited to, treatment requirements, operating procedures or practices to control plant site runoff, spillage, leaks, sludge, waste disposal or drainage from raw material storage.

There are different types of BMPs - structural (temporary and permanent) and non-structural:

- Temporary Structural Construction BMPs address short-term stormwater contamination threats. Temporary BMPs are removed at the conclusion of a construction project (ex. haybales).
- Permanent Structural BMPs are installed during construction and are designed to provide long-term stormwater quality protection after a project's completion (ex. detention basins).
- Non-Structural BMPs involve no physical structures, but aim to protect stormwater quality through education, maintenance practices (i.e., street sweeping), and policies.

4.1 Measures to Control Discharges through Education

This section describes ADOT's stormwater education program including training, public education and outreach, public participation and involvement, and intra and inter-governmental coordination.

4.1.1 ADOT Employee Training

Permit section 3.2.2.1(a) requires ADOT to develop and implement an employee stormwater training program. According to the Permit, employees identified in this section of the SSWMP will receive initial training within the first 12 months of the effective date of the Permit (September 18, 2008) and refresher training at least once every three years thereafter. All new employees and existing staff whose duties change to include new stormwater responsibilities will receive training within the first year of hire or within the first year of the change in their responsibilities. After the Permit was issued, ADOT requested an extension from ADEQ on the timeline for implementing training requirements. ADEQ is allowing ADOT to extend the training schedule for two to three years following the implementation of the Permit. This additional time will allow ADOT to develop training curricula, as well as a system for administering, tracking and providing training to all the appropriate personnel.

Primary responsibility for developing and implementing this program rests with OES and ITD Technical Training. The ITD Technical Training Department oversees all ADOT

employee training, including the training requirements in the Permit. OES is primarily responsible for developing Permit-required training content in coordination with the Training SWAT. After the training is developed, responsibility for implementation lies with the ITD Technical Training Department. Training curricula and records are managed by ITD Technical Training and will be summarized in the Annual Report. Curricula will be evaluated and refined on an as-needed basis by the Training SWAT and OES to ensure the educational messages are consistent, up-to-date, and effective.

The training may consist of individual, online PowerPoint segments delivered via webinar, standup training, or a combination of both. The training classes will include interactive quizzes throughout the presentation followed by a certificate at the successful conclusion of training.

ADOT employees and their supervisors can access the PathLore Software on the ADOT Intranet to determine what training is mandatory for each employee. Upon hire, each employee is informed of their training requirements. If an employee becomes delinquent in their training requirements, a notification is sent to their supervisor for follow-up. After an employee successfully completes a training class the date and results of the training are automatically recorded in the database to each specific employees training file. The Water Quality Group requests the ITD Training Technical Training Director to access the database to run reports for the number of training classes delivered and number of employees trained for inclusion in the Annual Report.

The remainder of this section describes the details of ADOT's Employee Stormwater Training Program. Table 4.1-ADOT Training Requirements identifies the ADOT staff to be trained.

4.1.1.1 Stormwater Training

Permit section 3.2.2.1(a)(i) requires stormwater awareness training to educate personnel at all levels of responsibility involved in activities that may impact stormwater quality. This includes staff that may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer in the normal course of their duties.

The Permit contains nine separate training requirements:

- General Stormwater Awareness
- Illicit Discharges and Illegal Dumping
- Non-stormwater Discharges
- New Construction and Land Disturbances
- New Development and Significant Redevelopment
- Storm Sewer System and Highway Maintenance
- Good Housekeeping – Waste Disposal
- Good Housekeeping – Pesticides, Herbicides, and Fertilizers
- Good Housekeeping – Industrial Sites

To most efficiently conduct and document training, the nine training requirements were grouped into six segments:

- General Stormwater Awareness
- Non-Stormwater Discharges, Illicit Discharge, and Illegal Dumping
- New Construction and Land Disturbances, New Development, and Significant Redevelopment
- Storm Sewer System and Highway Maintenance
- Good Housekeeping – Pesticides, Herbicides, and Fertilizers
- Good Housekeeping – Waste Disposal and Industrial Sites

All employees to be trained will receive the general stormwater awareness training. Only personnel with identified responsibilities in those areas will participate in other five activity-specific stormwater training modules. The list below identifies the departments or personnel requiring stormwater training:

- OES (not including Natural Resources Personnel)
- DECs
- Hazardous Materials Personnel
- Construction Site Inspectors
- Resident Engineers
- Highway Operations (Maintenance) Personnel
- Natural Resources Personnel
- Roadside Development Section
- Equipment Services Personnel
- Industrial Site Personnel
- District Permits
- Development

Table 4.1-ADOT Training Requirements presents a list of the departments and the specific stormwater training required.

4.1.1.2 General Stormwater Awareness Training

General Stormwater Training is required [Permit section 3.2.2.1(a)(i)] to educate personnel at all levels of responsibility who are involved in activities that may impact stormwater quality and those staff who may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system.

4.1.1.3 Activity-Specific Stormwater Training

Specific stormwater training is required [Permit section 3.2.2.1(a)(ii)] to educate personnel who are directly involved in activities that may impact stormwater quality or that may generate or manage non-stormwater discharges. Although the content of specific stormwater training is still in the development stages, training will contain, at a minimum, all the components required by the Permit.

Table 4.1 - ADOT Training Requirements											
	OES[1]	***DECs[2]***	***HazMat Personnel***	***Construction Site Inspectors***	***Resident Engineers***	***Highway Operations (Maintenance) Personnel***	***Natural Resources Personnel***	***Roadside Development Personnel***	***Equipment Services Personnel***	***Industrial Site Personnel***	***District Permits and Development Personnel***
Class 1											
General Stormwater Training [3.2.2.1(a)(i)]	X	X	X	X	X	X	X	X	X	X	X
Class 2											
Illicit Discharge and Illegal Dumping [3.2.2.1(a)(ii)(1)]	X	X	X	X		X	X	X	X		X
Non-stormwater Discharges [3.2.2.1(a)(ii)(2)]	X	X		X	X	X	X	X	X		X
Class 3											
New Construction and Land Disturbances [3.2.2.1(a)(ii)(3)]		X		X	X	X					X
New Development and Significant Redevelopment [3.2.2.1(a)(ii)(4)]		X		X	X	X					X
Class 4											
Storm Sewer System and Highway Maintenance [3.2.2.1(a)(ii)(5)]	X	X				X					
Class 5											
Good Housekeeping – Waste Disposal [3.2.2.1(a)(ii)(6)(a)]	X	X		X		X	X		X	X	
Good Housekeeping – Industrial Sites & GCNP Airport [3.2.2.1(a)(ii)(6)(c)]		X				X				X	
Class 6											
Good Housekeeping – Pesticides, Herbicides, Fertilizers [3.2.2.1(a)(ii)(6)(b)]		X				X	X				

NOTES:
1 Includes Compliance, Environmental Planning, Plans and Permits, and Water Quality.
2 District Environmental Coordinator

Non-Stormwater Discharges, Illicit Discharges, and Illegal Dumping

This training includes:

- The types of discharges allowed under this Permit and those that are prohibited
- The distinction between non-stormwater discharges and potential pollutant sources
- The pollutants of concern that may be in non-stormwater discharges
- The BMPs that shall be employed to minimize the discharge of pollutants
- Procedures for detection, investigation (i.e, field screening procedures, sampling methods, and field measurements), identification, clean-up, and reporting of illicit discharges and connections
- Improper disposal/dumping
- Procedures for outfall screening and investigation

This training also includes discussion regarding the applicable manuals, namely the *Erosion and Pollution Control Manual, Stormwater Monitoring Guidance Manual for MS4 Activities,* and the *QAM*.

New Construction and Land Disturbances, New Development, and Significant Redevelopment

This training includes:

- The requirements of the Permit and the AZPDES CGP for structural and non-structural BMPs on construction sites, such as erosion and sediment control and waste control
- The ADOT Contractors' requirements to obtain coverage under and comply with the AZPDES CGP and the requirements of that permit
- ADOT's compliance, enforcement, and contractual processes to minimize stormwater discharges
- Post-construction stormwater BMPs to prevent or minimize water quality impacts
- Design standards, maintenance requirements, and planning as related to stormwater

This training also includes instruction regarding the *Erosion and Pollution Control Manual, Post-Construction BMP Manual, Stormwater Monitoring Guidance Manual for Construction Activities* and the *QAM*.

Storm Sewer System and Highway Maintenance

This training includes:

- Potential sources of contaminants related to repair and maintenance activities
- Proper maintenance, housekeeping, and repair BMPs to prevent discharges to the storm sewer system and WUS

This training also includes instruction regarding the *Erosion and Pollution Control Manual, Maintenance and Facilities BMP Manual, Stormwater Monitoring Guidance Manual for MS4 Activities* and the *QAM*.

Good Housekeeping – Waste Disposal and Industrial Sites

This training includes:

- Procedures to prevent, contain, and respond to spills
- Proper handling, storage, transportation, and disposal of toxic and hazardous materials, including used oil and batteries, to prevent or minimize spills or discharges to the storm sewer system
- The requirements of BMPs, SWPPPs, and conditions of the Permit that relate to on-site industrial activities
- Used oil and spent solvent management; fueling procedures; general good housekeeping practices; proper painting procedures; and used battery management

This training also includes instruction regarding the *Maintenance and Facilities BMP Manual*, Arizona Department of Emergency Management Plan – *Hazardous Materials Annex*, *Stormwater Monitoring Guidance Manual for Industrial Activities* and the *QAM*.

Good Housekeeping – Pesticides, Herbicides, and Fertilizers

This training includes:

- The potential for stormwater contamination resulting from misapplication or over-application of chemicals
- Proper application procedures and BMPs
- Procedures to prevent, contain, and respond to spills

This training also includes instruction regarding the *Maintenance and Facilities BMP Manual*.

4.1.1.4 Stormwater Library

Employees will also have access to the online stormwater Library described in section 3.3 for self-education on stormwater topics.

4.1.2 ADOT Construction Contractor Training and Certification

The revised section 104.09 of ADOT *Standard Specifications for Road and Bridge Construction* (2008 Edition) require ADOT construction contractors to provide a certified ECC for all work on an ADOT construction project that requires a SWPPP. The level of experience required to qualify as an ECC varies with the nature of the project. ECCs are certified through a 2-day (16 hour) training program developed jointly by ADOT and AGC (see Appendix A – ADOT Specifications and Chapter III.B.3, Erosion Control Coordinator Training and Certification for additional details). For routine construction projects requiring a SWPPP, the ECC shall have one year of documented experience whereas an ECC working on sensitive projects (as designated by ADOT) must have a greater level of experience and training. This additional training consists of Arizona registration as a Landscape Architect or Professional Engineer with minimum of one year experience in erosion control/ sediment transport or Certification by EnviroCert International as a Certified Professional in Erosion and Sediment Control.

The 16-hour ECC training course, according to Permit section 3.2.2.1(b), includes training on the erosion and sediment control BMP requirements and inspection and maintenance of construction BMPs. See section 2.1.2 for information on the purpose and implementation of the ECC training course.

ADOT employees and members of the public attend the ECC Training and Certification Course. The number of ADOT employees trained and certified is provided by the Water Quality Group or a representative from the AGC for inclusion in the Annual Report.

4.1.3 Erosion and Pollution Control Manual

See section 3.3.1.

4.1.4 Public Education and Outreach

Public education and outreach are ongoing efforts by ADOT to inform members of the general public about actions individuals can take to reduce transportation-related pollutants and improve water quality. Education and outreach efforts are overseen by the Outreach SWAT (see section 3.2.7).

4.1.4.1 Program Description

The Public Education and Outreach program is required by the Permit [section 3.2.2.2 (a)].

The target audience is the construction industry and the public (highway users). These audiences were selected because they have the greatest impact on stormwater and are the largest users of the ADOT highway system.

Targeted pollutants include sedimentation from construction sites, litter, unsecured loads, and tire treads from highway users. These are the most common sources of pollution and have the potential for a large impact on stormwater quality.

4.1.4.2 Distribution of Materials through Public Places

Distribution of materials through public places is required by the Permit [section 3.2.2.2 (b)(i)]. ADOT educates the public through:

- Participation in outreach activities with Regional Stormwater Coalitions.
- Participation with Arizona Clean & Beautiful (ACB)
- “Don’t Trash AZ!” (statewide anti-litter slogan)
- Litter Hotline

Educational materials and tools used to educate the public are:

- Pamphlets
- Posters
- Highway variable message boards
- Bus Stop Posters
- TV Advertisements

- Radio announcements
- Booths at local events (Earth Day events, baseball games, county fairs, etc)

Regional Stormwater Coalitions

The Regional Stormwater Coalition consists of a variety of groups, such as the PAG Stormwater Management Working Group (SWMWG), STormwater Outreach for Regional Municipalities (STORM), and Northern Arizona Stormwater Pollution Alliance (NASPA).

Arizona Clean & Beautiful

ACB is a nonprofit, volunteer driven organization dedicated to preserving, maintaining, and enhancing the beauty and environmental quality of Arizona through research education and the Arizona Affiliate Network. ACB affiliates include 21 communities and organizations throughout the state who share a common goal of maintaining environmental standards. ADOT partners with ACB through participation at special events and activities as well as through administration and promotion of the Litter Hotline (see section 4.1.5.5).

"Don't Trash AZ!"

"Don't Trash AZ!" has been the statewide anti-litter slogan since 2006. It is funded by a half cent sales tax approved by voters as Proposition 400 on November 2, 2004 within Maricopa County. The objective of the litter prevention and education program is to improve visual aesthetics along the highway system throughout the state.

In addition to "Don't Trash AZ!", Prop 400 funds are also distributed to the Phoenix Maintenance district for major activities that include regularly scheduled litter pickup along hot spots that require more frequent cleaning; and additional sweeping of the highway lanes and ramps.

ADOT participates with Don't Trash AZ by attending annual events and delivering presentations throughout the state on proper use of the campaign slogan and logo. Once funding becomes available, ADOT will provide communities with promotional items to communicate the anti-litter message and will make greater use of the Digital or Variable Message Signs (DMS/VMS) throughout the state reminding users of the highway system not to litter.

The number of outreach events attended by ADOT is tracked by the Outreach SWAT Leader for inclusion in the Annual Report. Educational materials created and distributed through participation with Regional Stormwater Coalitions are tracked through those groups' individual annual reports.

4.1.4.3 Distribution of Materials through ADOT's Stormwater Web Page

Distribution of materials through the Stormwater Webpage is required by the Permit [section 3.2.2.2 (b)(ii)].

ADOT maintains a webpage for its stormwater program at:
www.azdot.gov/Highways/OES/Water_Quality/Stormwater/Index.asp

The webpage includes a variety of stormwater related documents such as program manuals, maps, document templates, and MS4 contacts. Also included on the webpage are a number of links to other organizations who play a role in stormwater management (ADEQ, EPA, FHWA, etc). Plans are currently in progress to include links to the Regional Stormwater Coalitions as well as post educational materials distributed by ADOT or their affiliates.

The webpage is equipped with a visitor counter so the number of annual hits can be accessed by the Outreach SWAT leader and included in the Annual Report.

4.1.5 Public Involvement and Participation

4.1.5.1 Public Availability of Stormwater Documents

Distribution of materials through the Stormwater Webpage is required by the Permit [section 3.2.2.3 (a)]. This will be accomplished by making the Stormwater Library available to ADOT employees and members of the public. See section 3.3 for the Stormwater Library.

4.1.5.2 Public Comments

Gathering of public comments on the SSWMP is required by the Permit [section 3.2.2.3 (b)]. Public comments can be submitted via phone or through the OES "Contact Us" link from the OES webpage.

The Outreach SWAT Leader tracks the number of stormwater related public comments received and reports it in the Annual Report.

4.1.5.3 Public Reporting System

Implementing a system to gather public reports is required by the Permit [sections 3.2.2.3 (c) and 3.2.3.3(c)]. The system will be used to track public reports of spills, discharges, and dumping to its storm sewer system or receiving waters.

The system will consist of the general ADOT hotline and an e-mail address on the Water Quality webpage. ADOT advertises the phone number to direct the public how to report illicit discharges and illegal dumping. ADOT conducts an annual evaluation where to post reporting information at areas where illicit discharges and illegal dumping are found to be a recurring problem.

After receiving a report, ADOT initiates an investigation within 15 days (see section 4.2.3.2).

The Outreach SWAT Leader ensures the number of reports received and number of investigations initiated is tracked and reported in the Annual Report.

4.1.5.4 Adopt a Highway

The Adopt a Highway Program is required by the Permit [section 3.2.2.3 (d)] and shall be updated to include a stormwater component.

ADOT has developed a training presentation, available by cd and online, for use by program volunteers to ensure volunteer safety during the course of the cleanup event.

The Outreach SWAT Leader and Program Coordinator report the number of volunteer groups participating, number of miles cleaned, and the amount of trash collected in the Annual Report.

4.1.5.5 Litter Hotline

The Litter Hotline is required by the Permit [section 3.2.2.3 (e)].

The Litter Hotline (http://www.azdot.gov/highways/adoptahwy/HotLine.asp) includes a toll free number and an online reporting form for Arizona citizens to report litterers. This program belongs to ADOT and is administered by ACB through a procurement contract. After a litter report is received, license plate information is sent to the Motor Vehicle Division (MVD) for license plate matching. Letters are prepared by MVD reminding the driver of the littering laws. The ADOT contractor picks up the letters, adds a "Don't Trash AZ" litter bag, and mails the letter and bag to the registered owner of the vehicle.

The Program Coordinator works with the Outreach SWAT Leader to report the number of calls (and website reports) and includes the number in the Annual Report.

4.1.6 Intra and Inter-Governmental Coordination

Intra and Inter-Governmental Coordination is a program that includes coordination mechanisms and program enforcement procedures among divisions, groups, sections and districts within ADOT to ensure compliance with the terms of the Permit [section 3.2.2.4(a)]. The program also includes mechanisms to coordinate with other government agencies and MS4 communities when necessary to address issues of common concern related to implementation of the Permit [section 3.2.2.4(b)].

4.1.6.1 Internal Coordination

ADOT shall continue its implementation of internal coordination procedures. Although multiple departments within ADOT have stormwater responsibilities (see section 3.1) the OES oversees coordination of the stormwater program (see section 3.1.1).

4.1.6.2 Intergovernmental Coordination

ADOT shall continue coordinating with government departments outside of ADOT (see section 2.2) as well as Regional Stormwater Coalitions (see section 4.1.4.2).

4.2 Illicit Discharge/Illegal Dumping Detection and Elimination Measures

4.2.1 Minimizing Illicit Discharges and Illegal Dumping

4.2.1.1 Encroachment Permit Enforcement

Permit section 3.2.3.1(b) requires ADOT to implement and enforce encroachment permits and external party requirements on stormwater impacts for activities within ADOT's jurisdiction. ADOT will prohibit all third party illicit discharges to the storm sewer system owned or operated by ADOT as unauthorized encroachments pursuant to A.A.C. R17-3-508A.

The purpose of this BMP is to regulate use of ADOT's ROW by users working within a state highway ROW or any activity requiring the temporary use of or intrusion on a state highway ROW. The encroachment permit requires users to comply with any and all environmental laws and ensures that no activity shall cause ADOT to be in violation of any environmental laws. See section 2.1.1 for additional information regarding ADOT's legal authority.

The ADOT Permit Group within each district is responsible for reviewing permit applications and issuing encroachment permits for work within their district. The Highway Encroachment Permit Application and application guidance materials are available to download from the ADOT website.

If work is performed in the ROW without a permit ADOT will stop all work and require the user to either apply for a permit or remove the unauthorized encroachment at the user's cost. After consultation with the Office of the Attorney General (AG), ADOT may refer a matter to the AG for: (1) enforcement against the user of an unauthorized encroachment, or (2) recovery of costs from the encroachment user for ADOT removing an unauthorized encroachment if the encroachment user fails to remove the unauthorized encroachment.

If work is performed that violates a valid encroachment permit, ADOT may request court action to (1) revoke the encroachment permit or (2) require the permittee to undertake corrective or remedial action to address any violations.

Encroachment Permits are maintained on file at the District office where they were issued. The Permits SWAT also maintains some responsibility for the encroachment permit program. See section 3.2.5 for more information.

4.2.1.2 Maintenance and Facilities BMP Manual

See section 3.3.2.

4.2.1.3 Authorized Non-Stormwater Discharges

Permit section 3.2.3.1(d) allows ADOT to discharge certain authorized non-stormwater discharges. ADOT is required to develop and implement BMPs to minimize the discharge of pollutants that may result from these flows, including erosion from flow velocity.

The purpose of this BMP is to minimize illicit discharges and illegal dumping.

The *Erosion and Pollution Control Manual* (section 3.3.1) and *Maintenance and Facilities BMP Manual* (section 3.3.2) contain BMPs available for ADOT employees to implement to reduce erosion, sedimentation, and stormwater contamination.

The Water Quality Group is responsible for tracking updates to the two reference manuals.

4.2.2 Detecting Potential Illicit Discharges and Illicit Connections

4.2.2.1 Outfall Inventory

Permit section 3.2.3.2(a) requires ADOT to develop an outfall inventory to include the list of 71 major outfalls identified in the September 2005 Phase I and Phase II Stormwater System Maps. Within the first year of the permit, ADOT will also develop a proposal, including a schedule, to identify all outfalls in the Phase II municipalities and all Priority Outfalls statewide. The submittal shall identify areas prioritized for completion within this Permit term.

The purpose of this BMP is to raise ADOT's awareness of the components within the MS4.

ADOT will report the status of the inventory of all priority outfalls in the Annual Report. In 2009, ADOT contracted with an outside consultant to develop a statewide inventory all stormwater assets within the MS4. This task is expected to be completed in 2012.

The Water Quality Group and Information Management SWAT are responsible for this BMP.

4.2.2.2 Storm Sewer System Map

As per Permit section 3.2.3.2(b), by September 19, 2012 ADOT will develop a storm sewer map identifying the location of all ADOT's major outfalls identified to date and their receiving waters.

The storm sewer map will be used to increase ADOT's awareness of its MS4 and also as a tool for ADOT employees to use in responding to potential events that may contaminate stormwater.

The Water Quality Group and Information Management SWAT are responsible for this BMP. Features of the storm sewer system are identified by a feature identifier and

highway and milepost where they are located. For example, an outfall located on highway 101 at milepost 22 would be identified as: OUT-101-22. The Information Management SWAT has already begun with some features of the system entered into the Features Inventory. The Features Inventory is a GIS database documenting all features under ADOT's responsibility (including non-storm sewer system features) by Global Positioning System (GPS) coordinates.

In 2009, ADOT contracted with an outside consultant to develop a statewide inventory all stormwater assets within the MS4. This task is expected to be completed in 2012.

After the inventory is complete, the Information Technology Group will work with the Information Management SWAT and Construction Group to periodically update the database as new features come online. The Water Quality Group includes updates to the Features Inventory in the Annual Report.

4.2.2.3 Stormwater Monitoring Guidance Manual for MS4 Activities

See section 3.3.7.

4.2.2.4 Dry Weather Screening

Permit sections 3.2.3.2(d) and (e) require ADOT to implement its dry weather outfall screening and discharge characterization program and to inspect major and priority outfalls during the Permit term.

The purpose of this BMP is to allow ADOT to identify and monitor the condition of major and priority outfalls, and report illicit discharges, cross connections, and dry weather flows.

Each year ADOT reports how many of the major and priority outfalls were inspected as well as the number of storm drain cross connections detected, number of illicit discharges detected, and the number of dry weather flows detected.

The Water Quality Group developed a form available for inspectors to use when conducting their inspections to record illicit discharges and dry weather flows. At the direction of the DEC, inspections are conducted at the outfalls within each District. The results of the inspection and presence of illicit discharges and dry weather flows are recorded on the inspection form. At the conclusion of an inspection, reports are delivered to the DEC and copies of the inspection report are sent to the Water Quality Group.

The Water Quality Group is responsible for the investigating, tracking and reporting of the inspections and illicit discharges.

4.2.2.5 Training

See section 4.1.1.

4.2.3 Investigating Potential Illicit Discharges

4.2.3.1 Establish Illicit Discharge Investigation Procedures

Permit section 3.2.3.3(a) requires ADOT to update the *Stormwater Monitoring Guidance Manual for MS4 Activities* to include investigation procedures.

The purpose of this BMP is to provide ADOT with a methodology for investigating illicit discharges.

ADOT will describe updates to the manual in the first Annual Report.

The Water Quality Group has expanded the 'Dry Weather Field Screening Sites' portion of the Manual. See section 3.3.7.

The Water Quality Group will report the updates to the manual.

4.2.3.2 Investigate Illicit Discharges (Source Identification)

Permit section 3.2.3.3(b) requires ADOT to initiate an investigation within 15 days from the date of detection or report of an illicit discharge.

The 15 day timeframe ensures ADOT responds promptly to address reports of illicit discharges. With a faster response time, ADOT increases the likelihood of locating the illicit discharge and identifying the illicit discharger.

ADOT will include in the Annual Report the number of storm drain cross connections investigated, number of illicit discharges investigated, and number of other dry weather flows investigated.

The Water Quality Group receives reports either directly by phone, email, or though the website. Reports from the public received via the website are routed by Communications and Community Partnerships (CCP). If illicit discharges are identified by ADOT employees, the employee reports flow to their DEC and in turn, the DEC reports flows to the Water Quality Group.

The Water Quality Group currently uses an excel spreadsheet to track reports of illicit discharges. In the future, the Water Quality Group is considering expanding existing systems currently used for asbestos investigations, to include stormwater investigations.

4.2.3.3 Investigate Illicit Discharges (Respond to Complaints)

Permit section 3.2.3.3(c) requires ADOT to respond to reports of illicit discharges within 15 days from the date of detection or report.

The 15 day timeframe ensures ADOT responds promptly to reports of illicit discharges.

ADOT will include in the Annual Report the number of complaints received, number of complaints responded to, and the average response time (in days).

The Water Quality Group receives reports either directly by phone or though the website. In the course of initiating an investigation, the Water Quality Group may contact the individual making the report (if available) and gather more information.

The Water Quality Group will include in the Annual Report the number of complaints received, number of complaints responded to, and the average response time.

4.2.3.4 Incidental Dry Weather Discharge Reporting

Permit section 3.2.3.3(d) requires ADOT to report dry weather discharges from any ADOT outfall found during the normal course of business. Within 15 days of detection ADOT will initiate appropriate follow-up action to eliminate the discharges, including reporting the discharges to ADEQ as appropriate.

The 15 day timeframe ensures ADOT responds promptly to investigate and mitigate illicit discharges.

If a dry weather flow is observed by field personnel, the discharge is immediately reported to their DEC. The DECs either initiate their own investigation to confirm the discharge or documents the potential illicit discharge/illegal dumping or forwards the concern to the Water Quality Group. If the DEC conducts an investigation, the DEC notifies the Water Quality Manager of the discharge and investigation findings.

The Water Quality Group maintains records of all discharges and investigation reports received from DECs.

4.2.4 Eliminating Illicit Discharges and Illegal Dumping

4.2.4.1 Eliminate Existing Dry Weather Flows

Permit section 3.2.3.4(a) requires ADOT to investigate the source(s) and take action to eliminate the dry weather flows from the six major outfalls identified in the July 21, 2005 Summary Report within 90 days of the effective date of the Permit.

The 90 day timeframe was intended to promptly address and mitigate dry weather flows.

The Water Quality Group is responsible for the oversight of the investigation of dry weather flows. As required by the Permit, ADOT completed an investigation in February 2009 to identify the sources of known dry weather flows. A number of municipalities were identified as potential sources and activities are on-going to eliminate or exempt illicit discharge flows. Due to man-power and funding limitations, the six dry weather flows have not been eliminated by the time of this SSWMP submittal. Many of the dry weather flows identified have been preliminarily designated as either permitted discharges or were designed with the intent to discharge. The Water Quality Group is working to further develop a schedule for investigation and elimination of flows.

Activities to mitigate dry weather flows will be described in the Annual Report.

4.2.4.2 Eliminate Sources of Illicit Discharges

Permit section 3.2.3.4(b) requires ADOT to take action to eliminate the source(s) of illicit discharges and illegal dumping within 90 days of detection.

This 90 day timeframe is intended to assist ADOT in promptly mitigating illicit discharges and illegal dumping.

The Water Quality Group is responsible for maintaining records of the number of illicit discharges eliminated. Section 2.1 describes ADOT's legal authority and section 3.3.5 describes the *ERP* which outlines the enforcement actions ADOT may implement to achieve compliance from dischargers.

The Water Quality Group will track the number of illicit discharges eliminated each year and will include the number in the Annual Report.

4.2.4.3 Coordinate with Local Jurisdictions for Complaint Response and Investigation

Permit section 3.2.3.4(c) requires ADOT to establish and implement procedures for notifying other jurisdictions, including ADEQ for assistance in enforcement where ADOT lacks legal authority to establish enforceable rules or if an illicit discharger fails to comply with procedures or policies established by ADOT. Developing and implementing a procedure for notifying other jurisdictions allows ADOT to more easily work with state entities in applying enforcement actions.

The Water Quality Group currently works with other governmental entities such as MAG, PAG, and on an as-needed basis with other governments through the use of intergovernmental agreements. Sections 2.1 (Legal Authority) and 3.3.5 (*ERP*) outline how ADOT coordinates with municipalities, state, and federal regulatory agencies to address Permit violations originating outside ADOT's jurisdiction.

The Water Quality Group is responsible for updating procedures outlined in the *ERP* that involve coordination with other entities and will update the *ERP* as procedures change.

4.2.4.4 Record Actions

Permit section 3.2.3.4(d) requires ADOT to develop and implement a procedure to track the action taken on identification of illicit discharges and illegal dumping within 12 months of the effective date of the Permit.

The purpose of a procedure to track actions taken is to provide ADOT with a record of actions taken as well as verify timely follow-up to reports of illicit discharges and illegal dumping.

The Water Quality Manager maintains a database of reports and follow-up actions of illicit discharges and illegal dumping. Section 4.2.3.3 outlines the procedure from which the Water Quality Manager receives reports.

4.2.5 Responding to Spills

Permit section 3.2.3.5 requires ADOT to develop and implement procedures and BMPs to prevent or minimize water quality impacts from areas of new highway development and redevelopment within the MS4 Compliance Areas and unique and impaired waters.

Defined procedures allow ADOT to quickly and efficiently respond to spills and minimize impacts to compliance areas and unique and impaired waters.

ADOT uses the ADEM Plan, ESF-10 Oil and *Hazardous Materials Annex* (see section 3.3.4) for its Emergency Response Program.

This plan defines authority and responsibility for individual state agencies in response to accidental spills. It also establishes an emergency management framework for joint state agency operations. ADOT signed an MOU along with other state agencies, committees, and commissions that indicated their concurrence with the plan. ADOT actively carries out its responsibilities under the plan and responds to accidents on highways where hazardous material or potentially hazardous conditions exist and threaten human health and the environment. ADOT identifies accidents within its permitted areas that may cause a non–stormwater discharge and impact washes, streams, or lakes, and prioritizes corrective actions in these sensitive areas, to protect water quality.

4.3 Measures to Control Discharges from New Construction and Land Disturbances

4.3.1 Applicability of Construction Requirements

Permit section 5.1 details the construction requirements with which ADOT must comply for all projects owned, operated, or contracted by ADOT.

The Construction SWAT, District Engineers, Roadside Development Section and Water Quality Group all share responsibility for ensuring ADOT complies with Permit requirements.

4.3.2 Construction Site SWPPPs

Section 5.2 of the Permit requires all construction sites to develop a SWPPP. Each SWPPP must contain the following components: general requirements (5.2.1), site and activity description (5.2.2), BMPs to reduce pollutants (5.2.3), maintenance requirements (5.2.4), and inspections (5.2.5). According to Permit section 5.2.6, the SWPPP is required to be updated based on the results of the inspection (5.2.5) and corrective actions implemented within 15 calendar days following the inspection.

Development, implementation, and upkeep of a construction site SWPPP allows ADOT and its contractors to identify and document important site information. This allows personnel to become knowledgeable of the potential sources of pollution, practices to reduce pollutants, and assures compliance with the Permit.

For sites contracted by ADOT, the contractor will name an ECC for approval by ADOT. Once the ECC is approved by ADOT, the ECC develops the SWPPP. The SWPPP is reviewed by the Resident Engineer and, once accepted, the contractor files an NOI for coverage under the CGP with ADEQ.

A maintenance plan for all erosion and sediment control BMPs is required by section 5.2.4. The ECC and/or Resident Engineer are responsible for oversight of the requirements of this section, including maintaining all BMPs in effective operating condition, performing maintenance on ineffective BMPs within seven days of discovery and before the next anticipated storm event, and removing sediment from sediment traps when the design capacity has been reduced by 50%.

Routine inspections, required by Permit section 5.2.5.1, are conducted jointly by the Resident Engineer and the ECC. Routine inspections are conducted every 7-14 days or after a rain event. While conducting the inspection, the Resident Engineer and ECC follow the requirements of section 104.09F of the ADOT Construction Manual. These inspections serve as a relatively informal evaluation of the construction site. Deficiencies noted during the inspection are corrected by the ECC and reviewed again by the Resident Engineer at the next routine inspection.

In addition to routine inspections conducted by the EEC and Resident Engineer, two Construction Site Inspectors conduct more in-depth inspections of construction sites throughout the state. Construction sites are prioritized by the amount of earthwork involved and some sites receive follow-up inspections. Typically, the Construction Site Inspectors conduct approximately 80 inspections of active projects per year.

Findings from the inspections by the Construction Site Inspectors are documented and delivered to the Resident Engineer. The Resident Engineer is then responsible for ensuring all deficiencies are addressed within 14 days. Once the deficiencies are addressed, or within 14 days, the Resident Engineer sends a response to the Construction Site Inspector detailing the status of deficiencies. Responses are reviewed and scored for completeness by the Construction Site Inspector and a final report is sent to the District Engineer.

Permit section 5.2.6 requires construction site SWPPPs to be updated within 15 calendar days following an inspection. There are two copies of the SWPPP that are updated by the ECC throughout the course of the construction project. One copy of the SWPPP is located at the construction site while the second copy is maintained at the applicable District office. Construction Site Inspectors verify both SWPPPs are being updated before beginning each site inspection.

ADOT contractors maintain SWPPPs and associated documents on file for three years following the time that Permit coverage is terminated. ADOT maintains SWPPPs and associated documents on file for at least five years past the expiration of the Permit.

4.3.3 Operators under Contract to ADOT for Performing Construction Activities

4.3.3.1 Compliance with Construction General Permit

Permit section 5.3.1 states that ADOT shall require its contractors to comply with all requirements of ADEQ's AZPDES CGP, including the requirement to file an NOI. An NOI filed with ADEQ by the project owner and operator is required for coverage under the Arizona CGP. (The Permit covers ADOT's CGP requirements as owner of the construction projects and ADOT is not required to file an NOI.)

ADEQ's AZPDES CGP and Permit are not valid on Tribal Lands; however, ADOT also conducts construction project on Tribal Lands. For projects located on Tribal Lands, the NOI is filed with the USEPA by ADOT as the site owner and the contractor as the site operator for coverage under the federal NPDES Construction General Permit (NPDES-CGP). This SSWMP addresses activities on state-owned land only, for more information on the NPDES-CGP see http://cfpub.epa.gov/npdes/stormwater/cgp.cfm.

As described in section 4.3.2, the ECC is responsible for filing NOI to ADEQ or USEPA, as necessary. Routine inspections by the ECC and Resident Engineer check for compliance with components of the CGP.

4.3.3.2 NOT - Transfer of Responsibility to ADOT

Permit section 5.3.2 requires contractors to file a Notice of Termination (NOT) when the work is complete and interim stabilization is in place. ADOT then assumes responsibility for the site until final stabilization is achieved.

The contractor shall file an NOT with ADEQ (or with the USEPA for projects on Tribal Lands) for each construction site once final stabilization has been achieved or when transferring it to ADOT for completion.

Once final stabilization is complete, an ADOT Registered Landscape Architect (RLA) conducts the final stabilization inspection. This inspection consists of taking photographs, testing perennial vegetation, and verifying the percent stabilization in comparison to the existing vegetation for the area. After final stabilization is verified the contractor submits an NOT to ADEQ to discontinue coverage under the CGP. If the site has not undergone final stabilization and responsibility is being transferred from the contractor to ADOT, the contractor files the NOT, ADOT amends the SWPPP, work at the site is completed and once final stabilization is achieved, ADOT files a semi-annual electronic list of all construction projects that have achieved final stabilization.

By filing an NOT, coverage for the contractor under the CGP is discontinued. The filing of an NOT informs ADEQ that the site no longer under the purview of the CGP and that responsibility is being transferred to ADOT. The transfer of responsibility is outlined in section 104 of the ADOT Construction Manual.

ADOT contractors maintain SWPPPs and associated documents on file for three years following the time that CGP coverage is terminated. ADOT maintains SWPPPs and associated documents on file for at least five years past the expiration of the Permit.

4.3.3.3 Completed Construction Site Inventory

Permit section 5.3.3 requires ADOT to provide ADEQ with an electronic list of all construction projects that have achieved final stabilization and that ADOT considers complete. These submittals are due by July 10th and January 10th of each year.

By providing an updated list to ADEQ, ADOT will maintain up-to-date records and ADEQ will receive the most accurate information as to which sites no longer need to be covered under the ADOT Permit.

Upon completion of stabilization inspections (see 4.3.3.2), the RLA prepares and issues a stabilization memo for each site. The memo is issued to the Resident Engineer with a copy to the Water Quality Group and the DEC. The Water Quality Manager retains the record and submits the bi-annual list of sites to ADEQ.

4.3.3.4 Enforcement Tracking and Reporting

Permit section 5.3.4 requires ADOT to provide in the Annual Report a list and description of all violations and their resolution, including any enforcement taken against it contractors.

The purpose of this requirement is to document the level of oversight conducted by ADOT, to develop a history of enforcement actions taken against its contractors, and show a track record of typical violations.

Section 4.3.2 details the inspection and follow-up procedures conducted by the Construction Site Inspectors. The inspection letters forwarded to the District Engineer after the deficiencies are addressed by the Resident Engineer will be used to meet the Permit requirement. Each Resident Engineer is responsible for maintaining a file of all Construction Site Inspectors findings and will assist the Water Quality Group in preparing to meet this requirement for the Annual Report.

In the future the Construction SWAT and Information Management SWAT will develop a statewide system for tracking and documenting findings from inspections conducted by the Construction Site Inspectors.

4.4 Measures to Control Discharges from New Development and Redevelopment

4.4.1 Post-Construction Control BMP Manual

See section 3.3.3.

4.4.2 Inventory, inspect, and maintain all post-construction stormwater pollution control BMPs

Permit section 3.2.5.2 requires controls be installed for all newly developed or redeveloped roadways that discharge stormwater runoff to impaired or unique waters. Permit section 3.2.5.3 requires ADOT to inventory, inspect, and maintain all post-construction BMPs in accordance with the *Post-Construction BMP Manual*.

Although proper selection and installation of BMPs are crucial to preserving stormwater quality in runoff, without conducting routine maintenance and inspections activities, ADOT has no assurance that BMPs are operating as intended. By implementing the inventory, inspection, and maintenance program for post-construction BMPs, ADOT can ensure BMPs are operating properly and promptly address any instances of a malfunctioning BMP.

The Maintenance Department within each District is responsible for conducting maintenance activities on the post-construction BMPs. District Maintenance Engineers are responsible for the oversight of maintenance activities as well as developing and implementing systems to track maintenance activities.

Currently, there is a wide range of methods each district is implementing to inventory stormwater assets and track maintenance requirements of each BMP. ADOT has hired a consultant to inventory all stormwater assets for which ADOT is responsible throughout the state. This survey is not anticipated to be completed until 2012. Once the survey is complete, ADOT will have an accurate GIS linked database that can be used to document the status and condition of BMPs throughout each District. This database can then be used to schedule, coordinate, and track maintenance activities as well as improve efficiency within each District by reducing travel.

The Maintenance/Facilities SWAT is in the process of developing a uniform system to implement for conducting regular maintenance in each district.

4.4.3 Training

See section 4.1.1.

4.5 Measures to Control Discharges from Roadways

4.5.1 Maintenance and Facilities Best Management Practices Manual

See section 3.3.2.

4.5.2 Storm Sewer System and Highway Maintenance

4.5.2.1 Inventory Post-Construction Stormwater Pollution Control BMPs

Permit section 3.2.6.1(a) requires ADOT to develop an inventory of post-construction stormwater pollution control BMPs and submit the initial inventory of stormwater pollution control BMPs to ADEQ within two years of the effective date of the Permit. In negotiations with ADEQ after the Permit was issued, this timeframe has been extended to four years after the effective date of the Permit.

Creation of the inventory is addressed in section 4.4.2.

During the development stage the Water Quality Group will coordinate with the Design, Construction and Maintenance/Facilities SWATs to ensure a method is in place for a report to be executed that includes the stormwater pollution controls, categorized by type and location, identified in Permit section 3.2.6.1(a)(iii).

The Water Quality Group will submit this report to ADEQ by September 18, 2012.

4.5.2.2 Inspect Storm Sewer System

Permit section 3.2.6.1(b) requires an inspection of the storm sewer system within 24 months from the effective date of the permit. ADOT is required to implement a system to inspect and record conditions of the storm sewer system, including roadways used for stormwater conveyance, catch basins, storm drain inlets, open channels, washes, culverts, and retention/detention basins to identify potential sources of pollutants and determine maintenance needs. Also, ADOT is required to maintain records of inspections and conditions found and shall present the number of inspections in each Annual Report. By determining the status of the storm sewer system ADOT can efficiently assess maintenance needs and schedule maintenance activities.

Each District Engineer is responsible for the oversight of inspections and maintenance of the storm sewer system within their district. As indicated in section 4.2.5.1 an extension has been granted to produce the inventory of the storm sewer system.

Records of inspections will be compiled by district personnel and forwarded to the Water Quality Group for inclusion in the Annual Report.

4.5.2.3 Develop Maintenance Schedules and Priorities

Section 3.2.6.1(c) requires ADOT to identify routine maintenance schedules and maintenance priorities for its storm sewer system, including roadways to minimize pollutant discharges from the storm sewer system. ADOT will evaluate priorities and update the maintenance schedule annually.

By developing, prioritizing, and implementing a routine maintenance schedule ADOT can efficiently maintain the storm sewer system.

Currently each district manages maintenance needs and sets priorities in a manner appropriate for each District. Each district has two representatives participating on the MSLT. Within this permit term, members of the MSLT and the Maintenance/Facilities SWAT will develop a standardized method for developing a routine maintenance schedule that includes prioritization, implementation, and a record keeping component. Each year, the MSLT will review the maintenance schedule and make revisions as necessary.

4.5.2.4 Stormwater System Repair, Maintenance, and Cleaning

Permit sections 3.2.6.1 (d-f) describe the following requirements: repair, maintenance, and cleaning for the storm sewer system and roadways used for stormwater conveyance; repair, maintenance and cleaning of BMPs; and proper disposal of waste removed during maintenance and cleaning activities.

By properly repairing, maintaining, and cleaning the storm sewer system ADOT can minimize the expense from major rehabilitation of the storm sewer system and roadways used for stormwater conveyance. Additionally, pollution of stormwater is minimized due to proper cleaning and disposal of waste material.

Repair, maintenance, and cleaning activities as well as disposal guidelines are described in the *Maintenance and Facilities BMP Manual* (see section 3.3.2).

4.5.2.5 Training

See section 4.1.1.

4.5.3 Roadside Maintenance Program

4.5.3.1 Pesticide and Fertilizer Application - Optimize Chemical Applications

Permit section 3.2.6.2(c)(i) requires ADOT to implement pesticide and fertilizer application procedures and use Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) approved pesticides/herbicides and fertilizers. Within 12 months of the Permit ADOT shall develop BMPs to address the timing of application in relation to expected precipitation events, proximity to water bodies, and other practices to minimize the runoff of pollutants. Additionally, ADOT shall review application practices annually and update procedures as needed.

By implementing appropriate application procedures, ADOT can ensure stormwater pollution is reduced and application materials are not wasted.

The *Stormwater Monitoring Guidance Manual for Construction Activities* (see section 3.3.8) and the Arizona Office of Pest Management licensing requirements contain the

guidelines governing pesticide, herbicide, and fertilizer application. The ADOT Natural Resources Group applicators are licensed by the Arizona Office of Pest Management (OPM) to apply herbicides pursuant to Arizona Revised Statute Title 32 Chapter 22. All Natural Resource applicators maintain a category B3 - Right-of-Way/Weed Control license. Some applicators also maintain category B9 - Aquatic Pest Control licenses. Licensed applicators recertify annually and are required to obtain a minimum of six hours of continuing education. All pesticides used by ADOT are registered with the USEPA. All herbicides used on the right-of-way are labeled for such use.

These application guidelines and procedures contained in the *Stormwater Monitoring Guidance Manual for Construction Activities* are reviewed and updated annually by the Water Quality Group in coordination with the Construction SWAT.

4.5.3.2 Pesticide and Fertilizer Application - FIFRA Certification

Permit section 3.2.6.2(c)(ii) requires ADOT to ensure that staff and commercial applicators are certified or licensed to apply pesticides at ADOT facilities, public areas, and ROW.

By ensuring staff and commercial applicators are properly certified or licensed, ADOT can minimize the potential mis-application of pesticides by staff and commercial applicators.

The Natural Resources Management Group and Construction Group along with the Maintenance/Facilities and Materials SWATs will coordinate to ensure that ADOT requirements for commercial applicators include a provision that only certified or licensed commercial applicators are hired. See Table 4.1 – ADOT Training Requirements, for the ADOT employees who will receive training on Good Housekeeping – Pesticides, Herbicides, Fertilizers measures.

4.5.3.3 Training

See section 4.1.1.

4.5.3.4 Erosion Abatement Projects

Permit section 3.2.6.2(d) requires ADOT develop a system to identify, track, and prioritize timely stabilization and repairs to road segments, not covered by the Construction part of the permit, where slopes are 3:1 or greater and actively eroding and sediment is leaving ADOT's ROW or discharging to a WUS. This system shall be described in the first Annual Report, and each Annual Report thereafter shall summarize erosion abatement projects conducted during the year.

By reducing the amount of erosion occurring discharging to ADOT's ROW or WUS, ADOT can reduce the amount of sediment polluting stormwater.

The *Erosion and Pollution Control Manual* (see section 3.3.1) contains BMPs guiding site stabilization and erosion control. The Water Quality Group works with the Maintenance/Facilities SWAT, the Materials Group, and personnel from each district to

ensure the inventory of stabilization sites is maintained and updated. The Water Quality Group provides the summary of erosion abatement projects in the Annual Report.

4.5.4 Winter Storm Policies

Permit section 3.2.6.3 contains the requirement for ADOT to continue to implement the BMPs in the Highway Maintenance Program guiding Snow and Ice Removal and the *Winter Storm Management Arizona Highways Environmental Overview* and *Winter Storm Management of Arizona Highways Operations Manual*. These BMPs address minimizing stormwater impacts from application of salt, de-icing and anti-icing chemicals and abrasives for snow and ice removal; salt and sand storage locations; and snow disposal areas. Additionally, BMPs are described in the *Maintenance and Facilities BMP Manual*.

By properly removing snow and ice from roadways, ADOT can ensure a safe roadway for the traveling public as well as minimizing impacts to stormwater runoff.

Snow and ice removal is conducted in accordance with the *Maintenance and Facilities BMP Manual* (see section 3.3.2). The Maintenance/Facilities SWAT and Water Quality Group are responsible for updating the practices contained in the Manual on an as-needed basis.

5.0 Monitoring

This section describes ADOT's stormwater monitoring program including monitoring protocols, analytical methods, reporting and records retention.

5.1 Monitoring Protocols/Instructions

5.1.1 Monitoring Instructions

Specific monitoring instructions are provided in the *QAM* and detail instructions for the collection and analysis of samples, analytical methods, and laboratory certification. See section 3.3.6 for more information on the *QAM*.

5.1.2 Quality Assurance Manual

The *QAM* is required by Permit section 8.3.2.2 to be made available for review by ADEQ and/or the Arizona Department of Health Services (ADHS) upon request. The Manual describes project management, sample collection procedures, approved analytical methods and data review requirements. The *QAM* is further discussed in section 3.3.6.

5.1.3 Adverse Conditions Waiver

ADOT monitors stormwater discharges associated with construction, industrial and MS4 activities except when adverse conditions are present. Adverse climatic conditions are recognized hazards that might cause injury or death and do not comply with the specific safety and health standards and regulations promulgated by OSHA and those conditions that create inaccessibility for ADOT personnel or its contractors.

The adverse conditions waiver permits bypassing sampling of representative events when adverse climatic conditions are present. If adverse climatic conditions prohibit the collection of samples during an applicable monitoring period, ADOT documents that adverse conditions prevented the collection of samples in the monitoring record.

5.1.4 Reporting and Record Retention

Records retention is required by Permit section 8.3.4.

5.1.4.1 Laboratory Analyses

ADOT maintains records for all laboratory analyses conducted related to the requirements of the Permit. Records include:

- The date, location, and time of sampling or measurements performed, and any preservatives used
- The names of individual(s) who performed the sampling or measurements
- The date(s) analyses were performed
- The laboratory that performed the analyses

- The analytical techniques or methods used and the minimum detection levels for those methods

The required information is shown on the laboratory report by the lab that conducted the analysis.

5.1.4.2 Field Monitoring

ADOT, or its contractor(s), documents data collection, observations, and field activities in the form of a field log or field data sheets. Entries are legible, dated, written in permanent ink, signed and contain accurate information. ADOT field logs are maintained onsite with the SWPPP. Logs detail the following:

- The date and time of the testing
- The name of the individual taking the test; flow information; and visual observations
- Sampling equipment or field screening techniques used
- The name, range, and accuracy of the equipment
- The sampling results

The required information is shown on the chain of custody (COC) prepared by the individual who collected the sample.

5.1.4.3 Records Retention

Copies of the following information are retained by ADOT for a period of at least five years from the date the Permit expires:

- Monitoring information, such as calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, field logs, and monitoring results
- Copies of SWPPPs or BMP Plans
- Copies of all reports required by the permit
- Records of all data used

Records are retained electronically by the Water Quality Group and/or District Offices.

5.2 Monitoring Discharges to Impaired or Unique Waters

The following section apply only to construction sites, concrete batch plants and asphalt plants that are located within ¼ mile of a unique or impaired water.

5.2.1 Construction/Industrial SWPPP Requirements for Monitoring

The SWPPP for applicable ADOT sites includes a monitoring program component to determine if BMPs are effective. Information included in the monitoring program includes at least the following:

- Location of sampling sites
- Water quality parameters/pollutants to be sampled
- The name and title of the person who will perform the sampling

- A paragraph describing the pollutant(s) of concern at the receiving water based on the most recent 303(b)/303(d) listing or other information
- A description of potential source(s) of this pollutant(s) from the project
- A map showing the segments of the receiving water that are most likely to be impacted by the discharge of pollutant(s)
- The citation and description of the sampling protocols to be used

5.2.2 Monitoring Discharges to Impaired or Unique Waters from Construction

ADOT samples stormwater discharges from construction sites located within ¼ mile of impaired or unique waters. Monitoring is conducted whenever stormwater is discharged from the site, or enters a WUS unless adverse conditions make sampling impracticable. Visual observations are only required during daylight hours (sunrise to sunset). Information on the conditions that prevent sampling are reported in the Annual Report. The procedures for conducting analytical and visual monitoring are included in the *QAM*.

5.2.3 Monitoring Concrete Batch Plants

Monitoring from Concrete Batch Plants that are used exclusively for ADOT projects is conducted wherever a plant is located within ¼ mile of an impaired or unique water. A minimum of one grab sample is collected from the discharge resulting from each storm event that has at least 0.1 inch of precipitation. The procedures for the collection of samples from industrial facilities are included in the *QAM*. Discharge limitations and monitoring parameters are listed in the Permit and in the *Stormwater Monitoring Guidance Manual for Construction Activities*.

5.2.4 Monitoring Portable Asphalt Plants

Monitoring from Portable Asphalt Plants that are used exclusively for ADOT projects is conducted wherever a plant is located within ¼ mile of an impaired or unique water. A minimum of one grab sample is collected from the discharge resulting from each storm event that has at least 0.1 inch of precipitation. The procedures for the collection of samples from industrial facilities are included in the *QAM*. Discharge limitations and monitoring parameters are listed in the Permit and in the *Stormwater Monitoring Guidance Manual for Construction Activities*.

5.3 Industrial Facilities Monitoring

5.3.1 General Requirements

Monitoring from industrial facilities is conducted in accordance with the *Stormwater Monitoring Guidance Manual for Industrial Facilities* (see section 3.3.9). The *QAM* details specific procedures for industrial facilities including monitoring requirements, limitations, reporting results and visual and analytical monitoring.

Monitoring from industrial facilities is reported on a DMR form or on forms provided or formatted by ADEQ. DMRs or other ADEQ provided forms are included with the Annual Report. See sections 6.3 and 6.4 for submittal deadlines and locations for reporting forms.

If pollutants are monitored more frequently than required by the permit, according to Permit sections 8.3.4.1(b) and 11.18.3.2, ADOT will include this monitoring in the calculation and reporting of the data submitted in the DMRs (or other ADEQ forms) attached to the Annual Report. ADOT calculates all limitations that require averaging of measurement using an arithmetic mean, unless specified otherwise.

The Water Quality Group is responsible for the collection and submittal of DMRs.

5.3.2 Sector-Specific Monitoring and Reporting Requirements

Monitoring and reporting is required for many ADOT owned or operated facilities, however, some specific industrial sectors have individual monitoring and reporting requirements. Specific procedures for collecting samples is included in the *QAM*.

5.3.2.1 Grand Canyon National Park Airport

Discharge limitations and monitoring parameters are listed in the Permit and in the site-specific SWPPP.

5.3.2.2 Durango Sign Factory

Each year of the Permit, ADOT will collect and analyze a total of two samples of their stormwater discharges from each representative outfall during precipitation events. ADOT will collect one sample between June 1 and October 31 and one sample between November 1 and May 31. Discharge limitations and monitoring parameters are listed in the Permit and in the site-specific SWPPP.

5.3.2.3 Materials Sources

Each year of the Permit, ADOT will collect and analyze a total of two samples of their stormwater discharges from each representative outfall during precipitation events. ADOT will collect one sample between June 1 and October 31 and one sample between November 1 and May 31. Discharge limitations and monitoring parameters are listed in the Permit and in the *Stormwater Monitoring Guidance Manual for Industrial Activities*.

5.3.2.4 Maintenance Facilities

ADOT will implement a monitoring program for facilities within ¼ mile of an impaired or unique water way including but not limited to:

- Nogales Maintenance Yard
- Superior Maintenance Yard
- Superior Storage and Fuel Yard

Monitoring requirements are listed in the Permit and each site-specific SWPPP.

Each year of the Permit, ADOT will collect and analyze a total of two samples of their stormwater discharges from each representative outfall during precipitation events. ADOT will collect one sample between June 1 and October 31 and one sample between November 1 and May 31.

5.4 MS4/Wet Weather Monitoring

5.4.1 Wet Weather Monitoring

ADOT implements a long-term comprehensive wet weather water quality monitoring program of discharges from its storm sewer system to WUS. For the first year of the Permit, monitoring is conducted at the Phoenix and Tucson locations. In the remaining Permit term, ADOT will monitor discharge from the Tucson site, a modified Phoenix site as well as locations in Flagstaff, Nogales, and Sedona.

Stormwater samples from ADOT outfalls will be collected from the first representative storm event of each wet season and subsequent representative storm events as necessary to collect at least one stormwater sample for each wet season from each outfall. Representative storm events and monitoring seasons are described in the *QAM*.

5.4.2 Stormwater Monitoring

For each storm event that results in stormwater sampling, The Water Quality Group will maintain a record of the storm event including:

a. The date sampled or measurement performed
b. The locations sampled or measurements performed
c. The exact time samples or measurements were taken for each location
d. The name of individual who performed the sampling or measurements
e. The duration (in hours) of the storm event(s)
f. The duration (in hours) between the storm event sampled and the end of the previous measurable storm event (greater than 0.1 inch rainfall)
g. Rainfall measurements (in inches) of the storm event that generated the sampled discharge
h. Flow rate. The estimated volume of stormwater discharged and the duration of the storm event (volume or unit of time). Measure the flow rate for each sample aliquot and determine the average flow rate and duration of the discharge event sampled for each outfall
i. The duration of the sampling period
j. The volume of discharge in the sampling period
k. The volume of each discrete or composite sample
l. The volume of each aliquot in the flow-weighted composite sample
m. The volume of discharge at the time of collection of each aliquot
n. The number of aliquots in each flow-weighted composite samples
o. The time of collection of each aliquot for composite samples
p. The sample preservatives used
q. The date(s) the analyses were performed

r. The laboratory and individual(s) who performed the analyses
s. The analytical techniques or methods used
t. The results of the analyses
u. The laboratory Method Detection Limit (MDL) and Quantitation Level of each method used
v. The COC forms
w. Any comments, case narrative or summary of results produced by the laboratory required to be supplied to ADOT by the laboratory under ADHS licensure rules
x. A summary of date interpretation and any corrective action taken by ADOT

5.4.3 Stormwater Monitoring Reporting

All monitoring data collected for each outfall will be include in the Annual Report. Each Annual Report will integrate data from the same outfall taken in earlier years into the analysis of results.

5.4.4 Storm Event Records

The Water Quality Group maintains a record of storm events greater than 0.1 inch in the areas where the MS4 monitoring outfalls are located, whether a stormwater sample was collected or not, until the Permit-required samples from each outfall are collected for each season. The following information will be summarized and included in the Annual Report:

- The date of the storm event
- The rainfall measurements (in inches) of the storm event, at each monitoring location
- For each monitoring location, whether a sample was collected or if not collected, information on the conditions that prevented sampling

5.4.5 Assessment of Pollutant Loading

Each year, ADOT will estimate the pollutant loadings from its storm sewer system to WUS for each constituent detected by stormwater monitoring. Pollutant loadings will be estimated for BOD, COD, TSS, TDS, total Nitrogen, total ammonia plus organic nitrogen (TKN), total Phosphorous and detected metals.

ADOT will estimate pollutant loadings and event mean concentrations from sampling data collected at the representative monitoring locations and the estimate will take into consideration land uses and drainage areas for the outfall.

ADOT will compare the pollutant loadings estimated each year to previous estimates of pollutant loadings throughout the Permit term to identify any changes in pollutant loads.

ADOT will include estimates of pollutant loadings and event mean concentrations in the Annual Report and will include a description of the procedures for estimating pollutant loads and concentrations, including modeling, data analysis, and calculation methods.

6.0 Reporting

6.1 Reporting

6.1.1 Annual Report Structure

The Annual Report summarizes the progress of this SSWMP and the findings of monitoring activities for each year of the Permit term. The table in Appendix B – Numeric Reporting Requirements, summarizes the numeric reporting requirements for each Annual Report as well as the department responsible for reporting the information.

6.1.2 Discharge of Pollutants above Water Quality Standards

If during the course of the year ADOT has a discharge that causes or contributes to an exceedance of an applicable water quality standard (WQS), ADOT will report the exceedance to ADEQ in the Annual Report. Exceedance reports will include:

- The sampling date
- The monitoring location
- The WUS that received the discharge and the surface WQS that was exceeded
- The monitoring results (laboratory reports)
- If reoccurring (i.e. detected more than once at an outfall), a description of the efforts to investigate potential sources of the pollutant(s) and identify the circumstances that may have caused or contributed to the pollutant
- Recommend actions for reducing the discharge of pollutants, if any, including feasible changes in management practices or pollution controls; to prevent the discharge from causing or contributing to an exceedance of a WQS in the future
- If applicable, a schedule for implementing the proposed stormwater or non-stormwater BMPs

Reports of exceedances are included in the Summary of MS4 Monitoring Data section of the Annual Report.

6.1.3 Annual Report Deadlines

The first Annual Report is due to ADEQ on or before September 30, 2009 and covers activities for the period July 1, 2008 – June 30, 2009. According to the permit, subsequent reports are due by September 30 of each year thereafter for the period of July 1st through June 30th. However, as indicated in section 3.3.10.2, negotiations between ADEQ and ADOT after the Permit was issued resulted in ADEQ allowing ADOT to submit the Annual Report by November 30, 2009.

6.2 Other Reporting Requirements

6.2.1 Planned Changes to Permitted Facilities

ADOT will give notice to ADEQ of any planned physical alterations or additions to the permitted facilities. Notification is required only when:

- The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in the Code of Federal Regulations (CFR) Title 40 Part 122.29(b), which is incorporated by reference at A.A.C. R18-9-A905(A)(1)(e); or
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1), which is incorporated by reference at A.A.C. R18-9-A905(A)(3)(b); and
- The alteration or addition results in a significant change in ADOT's practices, and the alteration, addition, or change may justify the application of Permit conditions that are different from or absent in the existing Permit including notification of additional use or disposal sites not reported during the Permit application process or not reported pursuant to an approved land application plan.

If ADOT identifies physical alterations or additions, the Water Quality Group will notify ADEQ in accordance with section 6.4. Notification will be made to ADEQ as soon as possible of any planned physical alteration or addition.

6.2.2 Anticipated Non-Compliances

If a planned change in the permitted facilities or activities results in non-compliance with Permit requirements, ADOT will give advance notice to ADEQ. The Water Quality Group will give advance notice in accordance with section 6.4.

6.2.3 Compliance Schedules

ADOT will submit reports of compliance or non-compliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the Permit no later than 14 days following each schedule date. The Water Quality Group will submit reports in accordance with section 6.4.

6.2.4 Twenty-Four Hour Reporting

As required by Permit section 11.18.5.1, the Water Quality Group or designee will orally report any non-compliance with the Permit which may endanger health or the environment within 24 hours from the time ADOT becomes aware of the circumstances to the ADEQ 24 hour hotline at (602) 771-2330.

The Water Quality Group or designee will provide a written submission to the ADEQ Water Quality Compliance Section within 5 days of the time ADOT becomes aware of the non-compliance. The written submission will contain a description of the non-

compliance and its cause; the period of non-compliance, including exact dates and times, and if the non-compliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance. Written submissions will be provided in accordance with section 6.4.

The following information will be reported to ADEQ within 24 hours:

- Any unanticipated bypass that exceeds any effluent limitation in the permit [see 40 CFR 122.41(g) , which is incorporated by reference at A.A.C. R18-9-A905(A)(3)(a)]
- Any upset that exceeds any effluent limitation in the permit
- Any violation of a maximum daily discharge limitation for any of the pollutants listed by ADEQ in the Permit within 24 hours [see 40 CFR 122.44(g), which is incorporated by reference at A.A.C. R18-9-A905(A)(3)(d)]

6.2.5 Other Non-Compliances

All instances of non-compliance not reported under sections 6.2.3 or 6.2.4 will be reported either at the time monitoring reports are submitted or will be included in the Annual Report. Reports will contain the information listed in section 6.2.4.

6.2.6 Other Information

If ADOT becomes aware that it failed to submit any relevant facts in a Permit application or submitted incorrect information in a Permit application or in any report to ADEQ, ADOT will promptly submit the facts or information.

Missing information will be submitted to ADEQ either by the Water Quality Group or by the Group/Department who made the original submission.

6.3 Submittal Deadlines

In addition to the Annual Report (see section 6.1.1) the Water Quality Group will submit the documents and information in Table 6.1-Schedule of Submittals.

Table 6.1 – Schedule of Submittals

Section #	Permit Requirement	Submittal Due Date	Submittal/ Reporting
1.3.8	Submit written request for approval of additional non-stormwater discharges	At least 60 days prior to discharge	Submit
3.1.3.4	Submit two written copies and one electronic copy of the updated SSWMP, including attachments	Within 12 months from the effective date of the permit	Submit
3.1.6.4	Submit the description of any proposed replacement BMP and the demonstration	At least 60 days prior to planned implementation of the alternative practice	Submit

Table 6.1 – Schedule of Submittals			
Section #	**Permit Requirement**	**Submittal Due Date**	**Submittal/ Reporting**
3.2.3.2(b)	Develop a storm sewer system map(s)	Within 4 years from the effective date of the permit	Submit with renewal application
3.2.6.1	Inventory post-construction stormwater pollution control BMPs statewide	Within 12 months from the effective date of the permit	Submit initial inventory
5.3.3	Provide an electronic list of all construction projects that have achieved final stabilization and that ADOT considers to be completed	By July 10 and January 10 of each year	Submit electronically or provide continually updated website address
6.5.1.2(b)	Approval for a new material source may be granted without a Permit amendment if ADOT submits a written request for a new material source to ADEQ for approval	At least 60 days prior to discharge	Submit to ADEQ. After approval, include the new material source in all subsequent Annual Reports
8.3.1.3	Submit the results of the annual NPDES DMR/QA study for all laboratories used in monitoring compliance with this permit	Annually upon receipt of study results	Submit to ADEQ and ADHS
8.4.3.1	Where ADOT considers that other monitoring strategies would be more effective due to specific conditions at construction sites within ¼ mile of impaired or unique waters	At least 90 days prior to commencement of construction activities	Submit an alternative monitoring plan to the ADEQ Surface Water Section for approval
8.5.3.1	Submit monitoring results obtained from each representative outfall on a DMR form	Due September 30 for each monitoring year	Submit DMRs
11.1	Renewal application	180 days before the existing Permit expires	Submit new application

6.4 Reporting Locations

Submittals contained in this section will be reported to the following locations as appropriate:

- 24-Hour Reporting
  ADEQ's 24-hour hotline (602) 771-2330
  ADEQ Water Quality Compliance Managers:
  Central Regional Office (602) 771-4525
  Southern Regional Office (520) 628-6724
  Northern Regional Office (928) 773-2701

- All Documents (except DMRs)
  Arizona Department of Environmental Quality
  Surface Water Section, Permit Unit Manager
  1110 W. Washington Street, MC 5415A-1
  Phoenix, AZ 85007
  Phone: (602) 771-4689

- DMRs
  Arizona Department of Environmental Quality
  Water Quality Compliance Section, Data Unit
  1110 W. Washington Street, MC 5415B-1
  Phoenix, AZ 85007
  Phone: (602) 771-4513

Appendix A

ADOT Specifications

Specification 104.09 SWDEQ
Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs

** USE FOR PROJECTS ON NON -TRIBAL LAND **
** WITH ONE OR MORE ACRES OF DISTURBED AREA. **

** EDIT EROSION CONTROL CERTIFICATION REQUIREMENTS IN SUBSECTION 104.09(D)(2) ON PAGE 8. **

*** FOR "QUICKSTART" JOBS, EDIT "QUICKSTART" SPECIFICATIONS IF NECESSARY TO ALLOW FOR EROSION COORDINATOR AND SWPPP APPROVAL TIMES. ***

*** NOT FOR USE WITH PROJECTS INVOLVING ADEQ-DESIGNATED "IMPAIRED WATERS." ***

** ADD BID ITEM FOR FORCE ACCOUNT EROSION ITEMS IF APPROPRIATE. **

(104SWDEQ, 3/02/09)

SECTION 104 - SCOPE OF WORK:

104.09 Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs: of the Standard Specifications is revised to read:

(A) General:

The contractor shall give attention to the effect of the contractor's operations upon the landscape, and shall take care to maintain natural surroundings undamaged.

The contractor shall be responsible to implement the requirements of the Arizona Pollutant Discharge Elimination System (AZPDES) for erosion and sediment control as specified in the "General Permit For Discharge From Construction Activities To the Waters Of The United States" as issued by the Arizona Department of Environmental Quality (ADEQ). That document is hereinafter referred to as the AZPDES general permit.

Useful information related to stormwater controls and erosion and sediment control measures is presented in the "Fact Sheet For The Issuance Of An AZPDES Construction General Permit," available from ADEQ, and ADOT's "Erosion and Pollution Control Manual," available from Engineering Records, 1655 West Jackson, Room 112F, Phoenix, AZ 85007; Phone (602) 712-7498.

The work shall include providing, installing, maintaining, removing and disposing of erosion and sediment control measures such as gravel filter berms, dikes, catch basin inlet protection, end-of-pipe filtering devices, silt fences, dams, sediment basins, earth berms, netting, geotextile fabrics, slope drains, seeding, stream stabilization, and other erosion and sediment control devices or methods. Erosion control, as hereinafter referenced, shall be deemed to include control of erosion and the mitigation of any resulting sediment. Erosion control measures may be temporary or permanent. The contractor shall also be responsible for the preparation and processing of all documents required in the AZPDES

general permit.

The plans will include preliminary erosion control measures and additional information to be included in the project's Storm Water Pollution Prevention Plan (SWPPP), as specified in Subsection 104.09(B). The contractor, with input from the Engineer, shall finalize the SWPPP, file a Notice of Intent (NOI), implement the SWPPP, and file a Notice of Termination (NOT), all as described herein.

Except for the NOI, all signatures required of the contractor by the AZPDES general permit, including those required for the NOT, SWPPP, and inspection reports, shall be provided by a duly authorized representative of the contractor, as defined in Part VIII.J.2 of said permit. Signature of the NOI shall be by a responsible corporate officer, as defined in Part VIII.J.1 of the AZPDES general permit.

No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been approved, the NOI completed and filed in accordance with Subsection 104.09(C), and the SWPPP implemented.

Submission of the contractor's NOI shall certify that the contractor and its subcontractors have read and will comply with all provisions of the AZPDES general permit.

(B) Stormwater Pollution Prevention Plan (SWPPP):

The plans will include descriptions of temporary and permanent erosion control measures; a project description; percent impervious area, including paved areas, rooftops, and other similar surfaces, for both pre-construction and post-construction conditions; inspection schedule; and site-specific diagrams indicating proposed locations where erosion and sediment control devices or pollution control measures may be required during successive construction stages. The plans may also include an initial schedule detailing the proposed sequence of construction and related erosion control measures.

The contractor shall review the preliminary information, including the erosion control features and phasing, evaluate all SWPPP requirements for adequacy in addressing pollution prevention during construction, and prepare a draft SWPPP for review by the Engineer.

The contractor shall designate an erosion control coordinator, in accordance with Subsection 104.09(D), to be responsible for finalization and implementation of the SWPPP, as well as all other applicable requirements of the AZPDES general permit. The contractor's erosion control coordinator shall be approved as specified in Subsection 104.09(D) before the draft SWPPP can be finalized and submitted to the Engineer. After approval, the contractor shall designate the erosion control coordinator as an authorized representative of the contractor in accordance with Part VIII.J.2 of the AZPDES General Permit.

The draft SWPPP shall include all information required in the AZPDES general permit, including a site map; identification of receiving waters and wetlands impacted by the project; a list of potential pollutant sources; inspection schedule; any onsite or off-site material storage sites; additional or modified stormwater, erosion, and sediment controls; procedures for maintaining temporary and permanent erosion control measures; a list of the contractor's "good housekeeping practices"; and other permit requirements stipulated in the AZPDES program as well as other applicable state or local programs. The contractor shall coordinate with the Engineer on all such additional information.

The draft SWPPP shall also identify any potential for discharge into a municipal separate storm sewer system, including the name of the owner/operator of the system.

Unless otherwise approved by the Engineer, the contractor shall not expose a surface area of greater than 750,000 square feet to erosion through clearing and grubbing, or excavation and filling operations within the project limits until temporary or permanent erosion control devices for that portion of the project have been installed and accepted by the Engineer.

As an example, installation of temporary silt fence concurrently with construction of an embankment area, along the toe of slope, may be appropriate to meet the above requirement until permanent erosion control measures are constructed.

The contractor shall indicate each 750,000 square-foot sub-area in the draft SWPPP, along with proposed erosion control measures for each sub-area. The draft SWPPP shall also include the sequence of construction for each sub-area, and installation of the required temporary or permanent erosion control measures.

The contractor shall give installation of permanent erosion control measures priority over reliance on temporary measures. Permanent erosion control measures and drainage structures shall be installed as soon as possible in the construction sequencing of the project, preferably concurrent with construction of the related sub-area or drainage device. However, except as specified in Part IV, Section B.2 of the AZPDES general permit and approved by the Engineer, erosion control measures shall be installed no later than 14 calendar days after construction activity has temporarily or permanently ceased for the affected sub-area.

Temporary or permanent sedimentation basins may be required for reducing or eliminating sediment from stormwater runoff. When required, such basins shall be completed before any clearing and grubbing of the site is initiated. The contractor shall evaluate the need and attainability of installing sediment basins as described in the AZPDES permit and, if approved by the Engineer, include the basins into the SWPPP as appropriate. When sedimentation basins are determined to be necessary and feasible, such work will be paid in accordance with Subsection 109.04(D). The plans may also include sediment basins as part of the preliminary information. No additional payment will be made for such basins, the cost being considered as included in contract items.

The draft SWPPP shall also identify and address erosion control at on-site fueling operations, waste piles, material storage sites, and off-site dedicated asphalt and concrete

plants, contractor-use areas, storage areas, and support activity locations which are used solely for the project and are covered by the AZPDES general permit. The draft SWPPP shall also accommodate all requirements for the contractor's "good housekeeping" procedures specified in Subsection 104.09(E). In addition, the SWPPP shall specifically identify the erosion control measures proposed by the contractor during any vegetation removal and salvaging phases of the project (such as during timber harvesting or native plant salvaging).

The draft SWPPP shall specify the mechanism whereby revisions may be proposed by the contractor or the Engineer throughout the project and incorporated into the plan, including review and approval procedure. The Engineer and contractor shall jointly approve and sign each revision to the SWPPP before implementation. Any subsequent submittals required by the contractor to revise or update the SWPPP will require at least 48 hours for review.

Contractors and subcontractors responsible for implementing all or portions of the SWPPP shall be listed in the draft SWPPP, along with the measures for which they are responsible.

The contractor shall submit two copies of the draft SWPPP, including all information specified herein, to the Engineer at the preconstruction conference if possible, but not later than 14 calendar days from the Department's approval of the contractor's Erosion Control Coordinator.

The Engineer will provide the contractor with the following forms at the preconstruction conference:

- Maintenance, inspection, and site-monitoring report forms;
- Other record keeping forms and procedures, as needed; and
- Notice of Intent (NOI) and Notice of Termination (NOT) forms.

Notice of Intent and Notice of Termination blank forms are also available on the internet at http://azdeq.gov/function/forms/appswater.html#cgp.

Within 10 calendar days from the SWPPP submittal, the Engineer and contractor will jointly review the contractor's draft SWPPP, and include any additional revisions directed by the Engineer. The finalized SWPPP shall meet the terms and conditions of the AZDPES general permit, and be compatible with construction sequencing and maintenance of traffic plans.

When agreement has been reached, the Engineer and contractor's authorized representative will sign the finalized SWPPP. The Engineer's signature will constitute approval of the SWPPP. Upon approval of the SWPPP, the contractor shall file a Notice of Intent (NOI) as specified in Subsection 104.09(C).

After the time period specified in Subsection 104.09(C), the contractor shall implement the requirements of the SWPPP. No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the

SWPPP has been approved, the NOIs completed and filed in accordance with Subsection 104.09(C), and the SWPPP implemented.

The contractor shall maintain all related erosion control elements in proper working order throughout the project. Work under this section also includes inspections, record-keeping, and implementation of "good housekeeping" practices as described in Subsection 104.09(E).

The approved SWPPP shall be updated whenever a change in design, construction method, operation, maintenance procedure, or other activity may cause a significant effect on the discharge of pollutants to surface waters, or when a change is proposed to the personnel responsible for implementing any portion of the SWPPP. The SWPPP shall also be amended if inspections indicate that the SWPPP is ineffective in eliminating or significantly reducing pollutants in the discharges from the construction site. All necessary modifications to the SWPPP shall be made within seven calendar days following the inspection that revealed the deficiency.

ADEQ may notify the contractor at any time that the SWPPP does not comply with the permit requirements. The notification will identify the provisions of the permit that are not being met and parts of the SWPPP that require modification. Within 15 business days of receipt of the notification from ADEQ the contractor shall make the required changes to the SWPPP and submit a written certification to ADEQ that the requested changes have been made.

The contractor's erosion control coordinator shall maintain the SWPPP along with completed inspection forms and other AZPDES records in a three-ring binder. The erosion control coordinator shall maintain a current copy of the SWPPP, including all associated records and forms, at the job site from the time construction begins until completion of the project. The SWPPP shall be available for public inspection and for use by the Engineer. The erosion control coordinator shall provide copies of any or all of such documents to the Engineer upon request. When requested, such copies shall be provided within three working days of the request.

The SWPPP (including inspection forms) and all data used to complete the NOI and NOT shall be provided to the Department at the completion of the project. The contractor shall retain its own records for a period of at least three years from the filing of the contractor's NOT.

No condition of the AZPDES general permit or the SWPPP shall release the contractor from any responsibilities or requirements under other environmental statutes or regulations.

(C) Notice of Intent (NOI):

After the project Storm Water Pollution Prevention Plan (SWPPP) has been approved, the contractor will complete a Notice-of-Intent (NOI) form for the project. The NOI includes a certification statement which must be signed and dated by a responsible corporate officer of

the contractor, as defined in Part VIII.J.1of the AZPDES General Permit, and include the name and title of that officer.

The NOIs shall be submitted to the Arizona Department of Environmental Quality (ADEQ) at the following address:

Arizona Department of Environmental Quality
Surface Water Section/Permits Unit/Stormwater NOIs (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to (602) 771-4528

The submittals shall be made to allow for the seven calendar-day review period required by ADEQ before the anticipated start of construction. The contractor shall also allow sufficient time, depending on the manner of submittal, for the NOIs to be received by ADEQ before commencement of the seven-day review period. An Authorization Certificate will be issued by ADEQ and, unless otherwise notified, the construction activities that are covered by the terms and conditions of the AZPDES permit may begin after the submittal period plus the seven calendar-day review period, or upon receipt of the Authorization Certificate, whichever occurs first. The contractor shall provide a copy of the authorization certificate to the Engineer, and keep a copy with the NOI.

The NOI may also be submitted electronically, through ADEQ's Smart NOI website at http://az.gov/webapp/noi/main.do. Regardless of the method of submittal, the contractor shall provide a copy to the Engineer.

At any time after authorization, ADEQ may determine that the contractor's stormwater discharges may cause or contribute to non-attainment of any applicable water quality standards. If ADEQ makes that determination, the contractor will be notified in writing. The contractor shall develop a supplemental erosion control action plan describing SWPPP modifications to address the identified water quality concerns. If the written notice from ADEQ requires a response, failure to respond in a timely manner constitutes a permit violation. All responses shall be in accordance with the AZPDES general permit.

If there is a potential to discharge into a municipal separate storm sewer system (MS4), a copy of the Authorization Certificate shall be submitted to the owner/operator of the system. Also, contractor's operating under an approved local sediment and erosion plan, grading plan, or stormwater management plan shall submit a copy of the Authorization Certificate to the local authority upon their request.

The contractor shall post its NOI and the information required in the AZPDES general permit on the construction-site bulletin board throughout the duration of the project. A copy of the AZPDES general permit shall also be kept at the construction site at all times.

(D) Contractor's Erosion and Pollution Control Coordinator:

(1) General Requirements:

The contractor shall designate a competent person as the contractor's erosion and pollution control coordinator (referred to elsewhere herein as erosion control coordinator) responsible for finalizing the draft SWPPP from the preliminary information included with the plans. The erosion control coordinator shall also be responsible for implementing, monitoring, and revising the approved SWPPP throughout the project, for making the required inspections, and for implementing any other permit requirements stipulated in the AZPDES general permit. The person shall be knowledgeable in the principles and practice of erosion and sediment controls, and possess the skills to assess conditions at the site that could impact stormwater quality and the effectiveness of the contractor's erosion control measures used to control the quality of the stormwater discharges.

Stormwater runoff from construction activities may contaminate adjacent bodies of water, or otherwise exceed water quality standards, and result in possible major civil and/or criminal penalties. Therefore the Engineer will closely consider the qualifications of the contractor's erosion control coordinator. The contractor shall not assume that the person proposed as erosion control coordinator will be acceptable to the Department merely because the experience and education requirements listed herein have been met.

The contractor bears all risks and liabilities for the failure of its erosion control coordinator to properly implement the requirements of the AZPDES general permit.

The person shall be capable of identifying existing and predictable effects of the contractor's operations, and shall have complete authority to direct the contractor's personnel and equipment to implement the requirements described herein, including prompt placement of corrective measures to minimize or eliminate pollution and damage to downstream watercourses. The erosion control coordinator shall also be familiar with procedures and practices identified in the SWPPP, and shall ensure that emergency procedures are up to date and available at project sites.

The erosion control coordinator shall at all times be aware of the contractor's work activities, schedule, and effect of the work on the environment, and shall, at any time, be accessible to direct the contractor's personnel to replace or repair erosion control measures as necessary. Should the erosion control coordinator not be present at the project site on a full-time basis, the contractor shall establish procedures to ensure that its erosion control coordinator is promptly notified of any damage or displacement of the required erosion control measures, whether from construction, vandalism, or other causes. In addition, the contractor shall provide the Engineer with a phone number through which the erosion control coordinator can be contacted at any time, 24 hours a day, seven days a week, including holidays. The erosion control coordinator must be present at the jobsite within 24 hours of such call being placed.

The erosion control coordinator shall also be aware of and comply with all requirements of the AZPDES general permit to address discharges at the site associated with the contractor's activities other than construction, including contractor staging areas, and other potential pollutant and off-site material storage and borrow areas.

Failure of the contractor to properly maintain the erosion control measures required in the approved SWPPP will be cause for the Engineer to reject the erosion control coordinator and issue a stop work order, as specified in Subsection 104.09(G).

(2) Certification Requirements:

The proposed erosion control coordinator shall have successfully completed the two-day (16 hour) "Erosion Control Coordinator" training class provided by the Associated General Contractors (Arizona Chapter), phone (602) 252-3926. In addition, the proposed erosion control coordinator shall have documented experience equal to a minimum of one year from either of the following two categories:

(a) Experience in the development and implementation of Stormwater Pollution Prevention Plans (SWPPP's), as specified in the AZPDES general permit referenced herein, or the National Pollutant Discharge Elimination System (NPDES) for highway construction projects. The proposed erosion control coordinator's experience shall demonstrate full-time responsibility for directly supervising construction personnel in the installation, monitoring, and maintenance of erosion control items.

(b) Experience in re-vegetation or restoration of disturbed areas in environments similar to those on the project. Experience in temporary or permanent stabilization of disturbed areas will also be considered. The proposed erosion control coordinator's experience shall demonstrate full-time responsibility for directly supervising personnel in temporary or permanent re-vegetation or restoration of disturbed areas.

The contractor's documentation shall provide details indicating the types of relevant experience, and shall provide the number of months of each type of experience to be considered for approval. Documentation shall also indicate that the proposed erosion control coordinator has completed the "Erosion Control Coordinator" training class prior to consideration for approval.

*** **FOR PROJECTS DEEMED "SENSITIVE" BY ROADSIDE DEVELOPMENT** ***
*** **SECTION, ADD THE FOLLOWING TWO PARAGRAPHS:** ***

The erosion control coordinator shall also meet one of the following requirements:

1. Registration in the State of Arizona as a Landscape Architect, with a minimum of one year of experience in the fields of erosion control or sediment transport.
2. Registration in the State of Arizona as a Professional Engineer with a minimum of one year of experience in the fields of erosion control or sediment transport.
3. Certification by the International Erosion Control Association (IECA) as a Certified Professional in Erosion and Sediment Control.

To be considered for approval, the contractor's documentation shall include a copy of the proposed erosion control coordinator's certification or registration. Should the proposed erosion control coordinator be a registered Landscape Architect or Professional Engineer in the State of Arizona, the contractor shall also provide documentation indicating the types of relevant experience, and the number of years of each type of experience to be considered for approval.

(3) Acceptance:

The contractor shall submit documentation indicating the qualifications of the proposed erosion control coordinator to the Engineer for approval within seven calendar days of the notice of award of the contract. The Engineer will review the proposed candidate's information within seven calendar days. The contractor may begin development of the draft SWPPP from the preliminary information included with the plans prior to approval of the erosion control coordinator. However no clearing, grubbing, earthwork, or other work elements that, in the opinion of the Engineer, may be subject to the requirements of the AZPDES general permit shall be started until the erosion control coordinator has been approved, the SWPPP finalized and implemented, and the NOI completed and filed, all as specified herein.

(E) "Good Housekeeping" Practices and Requirements:

The SWPPP shall also specify the contractor's "good housekeeping" practices and requirements, including vehicle wash-down areas, onsite and off-site tracking control, protection of equipment storage and maintenance areas, methods to minimize generation of dust, and sweeping of highways and roadways related to hauling activities. The contractor shall show each planned location of service and refueling areas on the SWPPP's site map. Changes to the contractor's "good housekeeping" practices that are related to construction phasing shall also be shown on the SWPPP.

The contractor shall take aggressive actions, considering all conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oil, bitumens, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels leading to streams, lakes or reservoirs. The SWPPP shall include the implementation of spill prevention and material management controls and practices to prevent the release of pollutants into stormwater. The SWPPP shall also provide storage procedures for chemicals and construction materials; disposal procedures; cleanup procedures; the contractor's plans for handling such pollutants; and other pollution prevention measures as required.

Machinery service and refueling areas shall be located away from streambeds or washes, and in a manner which prevents discharges into steams or washes.

Waste materials from blasting, including explosives containers, shall be disposed of off-site in accordance with applicable federal regulations. Other waste materials, such as used

cans, oils, machine and equipment parts, paint, hazardous materials, plastic and rubber parts, discarded metals, and building materials, shall be removed from the construction site and disposed of according to applicable state and federal regulations.

Where the contractor's working area encroaches on a running or intermittent stream, barriers shall be constructed and maintained between the working areas and the stream bed adequate to prevent the discharge of any contaminants. The SWPPP shall identify the location of streams that may be affected and the specific types of barriers proposed for protecting these resources.

Unless otherwise approved in writing by the Engineer, fording of running streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used whenever an appreciable number of crossings is necessary.

Temporary bridges or other structures proposed by the contractor shall be designed to accommodate the ten-year storm event if to remain in place for up to a one-year period. If a structure is planned to remain in place for longer than one year, the hydraulic conveyance may be subject to more stringent requirements. The contractor shall be responsible for all permits, authorizations, and environmental clearances that may be necessary to approve the use of such structures. The contractor shall submit the design and all required documentation to the Engineer for approval. The contractor is advised that the review and approval process for such structures could be lengthy. Unless otherwise provided for in the contract, the contractor shall be responsible for all costs associated with the design and construction of such structures. Also, no extension of contract time will be allowed for any review and approval periods, or for the time required to construct temporary bridges proposed by the contractor.

Mechanical equipment shall not be operated in running streams.

Material which is to be stockpiled or disposed of off-site shall be in accordance with Subsection 107.11.

Streams, lakes and reservoirs shall be cleared of all falsework, piling, debris or other obstructions resulting from the contractor's activities, inadvertently placed thereby or resulting from construction operations, within 24 hours from the time the obstruction was observed.

Spill prevention, containment and counter-measures shall be included in the SWPPP if the volume of project-site fuel in a single container exceeds 660 gallons, or if the total fuel storage volume at any one site exceeds 1,320 gallons.

In the event of a spill of a hazardous material, the contractor shall follow the provisions of Subsection 107.07. In addition, the erosion control coordinator shall modify the SWPPP as necessary within 14 calendar days of the discharge. The SWPPP shall be modified to include a description of the release, the circumstances leading to the release, and the date of the release.

The contractor shall assist in any efforts to clean up hazardous material spills, as directed by the Engineer or other authorities. Soil contaminated from spills shall be disposed of according to applicable state and federal regulations.

(F) Inspections:

(1) General:

The Engineer and the erosion control coordinator shall inspect the project at least every 14 calendar days, and also within 24 hours after any storm event of 0.50 inches or more. The inspections shall include disturbed areas that have been temporarily stabilized, areas used for storage of materials, locations where vehicles enter or exit the site, and all of the erosion and sediment controls included in the SWPPP. The contractor shall monitor rainfall on the site with a commercially manufactured rain gauge accurate to within 0.10 inches of rain. Rainfall records shall be submitted to the Engineer on a weekly basis.

For each inspection, the contractor's erosion control coordinator shall complete and sign a Compliance Evaluation Report as described in the permit. Copies of the completed reports shall be retained on-site in the SWPPP file throughout the construction period. The erosion control coordinator shall also provide a copy of the report to the Engineer following each inspection.

(2) Adjustments:

When deficiencies are noted during scheduled inspections, the contractor shall take immediate steps to make the required corrections as soon as practical. Deficiencies shall be fully corrected, to the satisfaction of the Engineer, within four calendar days or by the next anticipated storm event, whichever is sooner. Deficiencies noted between designated inspections shall be corrected within the time period directed by the Engineer, but not later than four calendar days after observation.

Direct inflows of sediment into a watercourse shall be corrected by the end of the same day or work shift in which the inflow was observed.

In accordance with Subsection 104.09(G), failure to implement adjustments within the specified time periods may be cause for the Engineer to reject the contractor's erosion control coordinator and issue a stop work order for the affected portions of the project.

(G) Non-Compliance:

The Engineer may reject the contractor's erosion control coordinator if, in the opinion of the Engineer, the conditions of the AZPDES general permit or the approved SWPPP are not being fulfilled. Rejection of the contractor's erosion control coordinator shall be for failure to complete any of the following:

(1) Should the Engineer determine that the SWPPP is not being properly implemented, the contractor will be notified in writing of such deficiencies.

The contractor's erosion control coordinator shall fully implement, to the satisfaction of the Engineer, the requirements of the approved SWPPP within three working days.

(2) Should any corrective measures required in Subsection 104.09(F)(2) not be completed within the time periods specified therein, the Engineer will notify the contractor in writing. The contractor's erosion control coordinator shall complete all required corrective measures within two calendar days of such notification, except that direct inflows of sediment into a watercourse shall be corrected within 24 hours.

(3) Should the Engineer determine that routine maintenance of the project's erosion control measures is not being adequately performed, the contractor will be notified in writing. Within three working days, the contractor's erosion control coordinator shall demonstrate, to the satisfaction of the Engineer, that such steps have been taken to correct the problem.

In the event of the erosion control coordinator's failure to comply with any of the above requirements, the Engineer will direct the contractor to stop all affected work and propose a new erosion control coordinator as soon as possible. However, all erosion and pollution control items specified in the SWPPP shall be maintained at all times. No additional work on construction items affected by the SWPPP will be allowed until a new erosion control coordinator has been approved by the Engineer. The contractor will not be allowed compensation or an extension of contract time for any delays to the work because of the failure of the contractor's erosion control coordinator to properly fulfill the requirements of the approved SWPPP.

(H) Record of Major Construction And Erosion Control Measures:

In addition to the compliance evaluation report, the contractor shall keep records of the major construction activities, including the erosion control measures associated with these activities. In particular, the contractor shall keep a record of the following activities:

- The dates when major grading activities (including clearing and grubbing, excavation and embankment construction) occur in a particular area or portion of the site.
- The dates when construction activities cease in an area, temporarily or permanently.
- The dates when an area is stabilized, temporarily or permanently.

Such information shall be noted within two working days of the occurrence of any of the listed activities, and a copy of the report shall be included in the SWPPP. The contractor shall also provide one copy of such records, and any subsequent up-dated information, to the Engineer within three working days of completion or amendment of the report.

(I) Notice of Termination (NOT):

Upon final acceptance by the Engineer in accordance with Subsection 105.20, and as specified herein, the contractor shall complete and mail a Notice-of-Termination (NOT) for

the project to the address shown below. The NOT submitted by the contractor includes a certification statement which must be signed and dated by an authorized representative of the contractor, as defined in Part VIII.J.2 of the AZPDES General Permit, and include the name and title of that authorized representative.

Arizona Department of Environmental Quality
Surface Water Section/Stormwater & General Permits (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to 602 771-4528

The NOT may also be submitted electronically, through ADEQ's Smart NOI website at http://az.gov/webapp/noi/main.do. Regardless of the method of submittal, the contractor shall provide a copy to the Engineer.

When the approved SWPPP includes the use of Class II seeding as an erosion control measure, seeded areas shall be maintained for 45 calendar days, as specified in the special provisions, and approved by the Engineer before the contractor's NOT can be submitted. Seeding, when used in the SWPPP as an erosion control measure, will not be considered as part of any Landscape Establishment Phase that may be included with the project.

(J) Measurement and Payment:

Measurement and payment for work specified in the SWPPP will be made in accordance with the requirements of Section 810. Erosion control and pollution prevention work specified in the contract which is to be accomplished under any of the other various contract items will be paid for as specified under those items.

If a force account pay item for erosion control is included in the bidding schedule, the contractor may be reimbursed for such additional erosion control items proposed by the contractor but not included with the plans or specifications. Such additional erosion control items must be approved in writing by the Engineer before use. Erosion control items approved by the Engineer will be paid in accordance with Subsection 109.04(D). No measurement or payment will be made for such additional items not approved by the Engineer.

No measurement or payment will be made to the contractor for time spent in preparing, reviewing, and revising the Storm Water Pollution Prevention Plan (SWPPP), or providing other required documentation, the cost being considered as included in the price of contract items. No measurement or payment will be made for inspections, the contractor's erosion control coordinator, or the contractor's "good housekeeping" practices and requirements, the costs being considered as included in contract items.

Unless otherwise specified, no measurement or payment will be made for maintenance of temporary and permanent erosion control measures, the cost being considered as included in contract items.

104.10 Contractor's Responsibility for Work: of the Standard Specifications is revised to read:

The contractor shall implement the requirements of the Arizona Pollutant Discharge Elimination System (AZPDES) for erosion control due to storm water runoff during construction, as specified above in Subsection 104.09, Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs.

Until final written acceptance of the project by the Engineer, the contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from any other cause, whether arising from the execution or from the nonexecution of the work. The contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance. No reimbursement shall be made for work necessary due to the contractor's failure to comply with the requirements of the SWPPP.

Except as specifically provided under Subsection 104.04, in case of suspension of work from any cause whatever, the contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project and provide for normal drainage. The contractor shall also erect any necessary temporary structures, signs or other facilities. During such period of suspension of work, the contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings and soddings, furnished under its contract and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

Appendix A

ADOT Specifications

Specification 104.09 SWDSP
Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs

** USE FOR PROJECTS ON NON -TRIBAL LAND WITH ONE **
** OR MORE ACRES OF DISTURBED AREA, AND THAT ARE **
** ALSO WITHIN 1/4 MILE OF ADEQ-DESIGNATED "IMPAIRED, **
** UNIQUE, OR NOT-ATTAINING WATERS", AS DETERMINED BY **
** ROADSIDE DEVELOPMENT SECTION. **

** EDIT MONITORING PLAN REQUIREMENTS ON PAGE 5. **

*** ADJUST CONTRACT TIME TO INCLUDE 7 ADDITIONAL WEEKS FOR ADEQ REVIEW. ***

*** ADD NOTE REGARDING 32 BUSINESS DAY REVIEW PERIOD TO GENERAL REQUIREMENTS. ***

** ADD BID ITEM FOR FORCE ACCOUNT EROSION ITEMS IF APPROPRIATE. **

** FOR PROJECTS WITH "IMPAIRED WATERS," ADD **
** FORCE ACCOUNT BID ITEM FOR LAB TESTS. **

*** NOT SUITABLE FOR "QUICKSTART" PROJECTS. ***

(104SWDSP, 3/02/09)

SECTION 104 - SCOPE OF WORK:

104.09 Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs: of the Standard Specifications is revised to read:

(A) General:

The contractor shall give attention to the effect of the contractor's operations upon the landscape, and shall take care to maintain natural surroundings undamaged.

The contractor shall be responsible to implement the requirements of the Arizona Pollutant Discharge Elimination System (AZPDES) for erosion and sediment control as specified in the "General Permit For Discharge From Construction Activities To the Waters Of The United States" as issued by the Arizona Department of Environmental Quality (ADEQ). That document is hereinafter referred to as the AZPDES general permit.

This project may discharge runoff into watercourses designated by ADEQ as "Impaired", "Unique", or "Not-Attaining." As a consequence, the contractor's finalized Storm Water Pollution Prevention Plan (SWPPP) shall include sufficient erosion and sediment control Best Management Practices (BMPs) to assure that discharges will not cause or contribute to non-attainment of Surface Water Quality Standards. In addition, a monitoring plan, as specified in Subsection 104.09(B)(2), shall be provided.

Useful information related to stormwater controls and erosion and sediment control

measures is presented in the "Fact Sheet For The Issuance Of An AZPDES Construction General Permit," available from ADEQ, and ADOT's "Erosion and Pollution Control Manual," available from Engineering Records, 1655 West Jackson, Room 112F, Phoenix, AZ 85007; Phone (602) 712-7498. Except as otherwise specified herein, the contractor's monitoring plan shall comply with ADOT's "Storm Water Monitoring Guidance Manual for Construction Activities", dated August 23, 2006, also available from Engineering Records. That document is hereinafter referred to as the Monitoring Guidance Manual.

The work shall include providing, installing, maintaining, removing and disposing of erosion and sediment control measures such as gravel filter berms, dikes, catch basin inlet protection, end-of-pipe filtering devices, silt fences, dams, sediment basins, earth berms, netting, geotextile fabrics, slope drains, seeding, stream stabilization, and other erosion control devices or methods. Erosion control, as hereinafter referenced, shall be deemed to include control of erosion and the mitigation of any resulting sediment. Erosion control measures may be temporary or permanent. Erosion control measures may be temporary or permanent. The contractor shall also be responsible for the preparation and processing of all documents required in the AZPDES general permit.

The plans will include preliminary erosion control measures and additional information to be included in the project's Storm Water Pollution Prevention Plan (SWPPP), as specified in Subsection 104.09(B). The contractor, with input from the Engineer, shall finalize the SWPPP. After approval by the Engineer, the contractor shall submit the SWPPP to ADEQ for review and approval, implement the monitoring plan, file a Notice of Intent (NOI), implement the SWPPP and monitoring plan, and file a Notice of Termination (NOT), all as described herein.

Except for the NOI, all signatures required of the contractor by the AZPDES general permit, including those required for the NOT, SWPPP, and inspection reports, shall be provided by a duly authorized representative of the contractor, as defined in Part VIII.J.2 of said permit. Signature of the NOI shall be by a responsible corporate officer, as defined in Part VIII.J.1 of the AZPDES general permit.

No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been reviewed and approved by ADEQ, the NOI completed and filed in accordance with Subsection 104.09(C), and the SWPPP implemented.

Submission of the contractor's NOI shall certify that the contractor and its subcontractors have read and will comply with all provisions of the AZPDES general permit.

(B) Stormwater Pollution Prevention Plan (SWPPP):

(1) General:

The plans will include descriptions of temporary and permanent erosion control measures; a project description; percent impervious area, including paved areas, rooftops, and other similar surfaces, for both pre-construction and post-construction conditions; inspection

schedule; and site-specific diagrams indicating proposed locations where erosion and sediment control devices or pollution control measures may be required during successive construction stages. The plans may also include an initial schedule detailing the proposed sequence of construction and related erosion control measures.

The contractor shall review the preliminary information, including the erosion control features and phasing, evaluate all SWPPP requirements for adequacy in addressing pollution prevention during construction, and prepare a draft SWPPP, including monitoring plan, for review by the Engineer.

The contractor shall designate an erosion control coordinator, in accordance with Subsection 104.09(D), to be responsible for finalization and implementation of the SWPPP, as well as all other applicable requirements of the AZPDES general permit. The contractor's erosion control coordinator shall be approved as specified in Subsection 104.09(D) before the draft SWPPP can be finalized and submitted to the Engineer. After approval, the contractor shall designate the erosion control coordinator as an authorized representative of the contractor in accordance with Part VIII.J.2 of the AZPDES General Permit.

The draft SWPPP shall include all information required in the AZPDES general permit, including a site map; identification of receiving waters and wetlands impacted by the project; a list of potential pollutant sources; inspection schedule; any onsite or off-site material storage sites; additional or modified stormwater, erosion, and sediment controls; procedures for maintaining temporary and permanent erosion control measures; a list of the contractor's "good housekeeping practices"; and other permit requirements stipulated in the AZPDES program as well as other applicable state or local programs. The contractor shall coordinate with the Engineer on all such additional information.

The draft SWPPP shall also identify any potential for discharge into a municipal separate storm sewer system, including the name of the owner/operator of the system.

Unless otherwise approved by the Engineer, the contractor shall not expose a surface area of greater than 750,000 square feet to erosion through clearing and grubbing, or excavation and filling operations within the project limits until temporary or permanent erosion control devices for that portion of the project have been installed and accepted by the Engineer.

As an example, installation of temporary silt fence concurrently with construction of an embankment area, along the toe of slope, may be appropriate to meet the above requirement until permanent erosion control measures are constructed.

The contractor shall indicate each 750,000 square-foot sub-area in the draft SWPPP, along with proposed erosion control measures for each sub-area. The draft SWPPP shall also include the sequence of construction for each sub-area, and installation of the required temporary or permanent erosion control measures.

The contractor shall give installation of permanent erosion control measures priority over reliance on temporary measures. Permanent erosion control measures and drainage

structures shall be installed as soon as possible in the construction sequencing of the project, preferably concurrent with construction of the related sub-area or drainage device. However, except as specified in Part IV, Section B.2 of the AZPDES general permit and approved by the Engineer, erosion control measures shall be installed no later than 14 calendar days after construction activity has temporarily or permanently ceased for the affected sub-area. For areas within 50 feet of an impaired or unique water, as shown on the plans, erosion control measures shall be installed within seven calendar days after construction activity has temporarily or permanently ceased.

Temporary or permanent sedimentation basins may be required for reducing or eliminating sediment from stormwater runoff. When required, such basins shall be completed before any clearing and grubbing of the site is initiated. The contractor shall evaluate the need and attainability of installing sediment basins as described in the AZPDES permit and, if approved by the Engineer, include the basins into the SWPPP as appropriate. When sedimentation basins are determined to be necessary and feasible, such work will be paid in accordance with Subsection 109.04(D). The plans may also include sediment basins as part of the preliminary information. No additional payment will be made for such basins, the cost being considered as included in contract items.

The draft SWPPP shall also identify and address erosion control at on-site fueling operations, waste piles, material storage sites, and off-site dedicated asphalt and concrete plants, contractor-use areas, storage areas, and support activity locations which are used solely for the project and are covered by the AZPDES general permit. The draft SWPPP shall also accommodate all requirements for the contractor's "good housekeeping" procedures specified in Subsection 104.09(E). In addition, the SWPPP shall specifically identify the erosion control measures proposed by the contractor during any vegetation removal and salvaging phases of the project (such as during timber harvesting or native plant salvaging).

The draft SWPPP shall specify the mechanism whereby revisions may be proposed by the contractor or the Engineer throughout the project and incorporated into the plan, including review and approval procedure. Revisions may also include changes to the monitoring plan, such as number or location of samples, or required testing. The Engineer and contractor shall jointly approve and sign each revision to the SWPPP before implementation. Any subsequent submittals required by the contractor to revise or update the SWPPP will require at least 48 hours for review.

Contractors and subcontractors responsible for implementing all or portions of the SWPPP shall be listed in the draft SWPPP, along with the measures for which they are responsible.

The contractor shall maintain all related erosion control elements in proper working order throughout the project. Work under this section also includes inspections, record-keeping, and implementation of "good housekeeping" practices as described in Subsection 104.09(E).

The approved SWPPP shall be updated whenever a change in design, construction method, operation, maintenance procedure, or other activity may cause a significant effect

on the discharge of pollutants to surface waters, or when a change is proposed to the personnel responsible for implementing any portion of the SWPPP. The SWPPP shall also be amended if inspections indicate that the SWPPP is ineffective in eliminating or significantly reducing pollutants in the discharges from the construction site. All necessary modifications to the SWPPP shall be made within seven calendar days following the inspection that revealed the deficiency.

A copy of the approved SWPPP shall be kept at the site from the time construction begins until the date of final stabilization.

ADEQ may notify the contractor at any time that the SWPPP does not comply with the permit requirements. The notification will identify the provisions of the permit that are not being met and parts of the SWPPP that require modification. Within 15 business days of receipt of the notification from ADEQ the contractor shall make the required changes to the SWPPP and submit a written certification to ADEQ that the requested changes have been made.

The contractor's erosion control coordinator shall maintain the SWPPP along with completed inspection forms and other AZPDES records in a three-ring binder. The erosion control coordinator shall maintain a current copy of the SWPPP, including all associated records and forms, at the job site from the time construction begins until completion of the project. The SWPPP shall be available for public inspection and for use by the Engineer. The erosion control coordinator shall provide copies of any or all of such documents to the Engineer upon request. When requested, such copies shall be provided within three working days of the request.

The SWPPP (including inspection forms) and all data used to complete the NOI and NOT shall be provided to the Department at the completion of the project. The contractor shall retain its own records for a period of at least three years from the filing of the contractor's NOT.

No condition of the AZPDES general permit or the SWPPP shall release the contractor from any responsibilities or requirements under other environmental statutes or regulations.

(2) Monitoring Plan:

The contractor shall prepare a construction monitoring plan to monitor discharges into the affected receiving water.

The monitoring plan shall comply with the Monitoring Guidance Manual, and shall include a description of the pollutant of concern, the activities or materials that may generate the pollutant, the location of such activities or materials, and methods to ensure that transport of the pollutant to the waterway is minimized as much as possible. The monitoring plan shall specify the location of monitoring points, as well as the methods, equipment, and reporting processes necessary to accurately measure water quality.

Except as specified herein, the contractor's monitoring plan and related work activities shall comply with all applicable elements of the Monitoring Guidance Manual, including sample locations, monitoring schedule, documentation, and reporting requirements. ADEQ may specify revisions to the monitoring plan during the review process. The contractor shall make such required revisions before beginning any work involved in the SWPPP.

The minimum number and type of monitoring points will be as specified herein. The contractor shall determine the appropriate locations based on the Monitoring Guidance Manual.

** CONTACT ROADSIDE DEVELOPMENT FOR SPECIFIC RESTRICTIONS FOR **
** THE AFFECTED WATERWAY. INFORMATION SHOULD INCLUDE TYPE **
** OF POLLUTANT AND RECEIVING WATER, AND ALLOWABLE **
** NUMERIC CONCENTRATION VALUE (TMDL), IF REQUIRED. **
** ALSO INCLUDE PROJECT-SPECIFIC REQUIREMENTS, SUCH AS **
** NUMBER OF MONITORING POINTS AND TYPE OF MONITORING, **
** AS PROVIDED BY ROADSIDE DEVELOPMENT. **

Sampling and any onsite testing called for in the Monitoring Guidance Manual shall be performed by the erosion control coordinator, or other qualified personnel as approved by the Engineer.

Monitoring techniques for all locations shall include visual monitoring, photo documentation, and analytical monitoring, including turbidity. When included in the special provisions, specific impairment monitoring and subsequent laboratory testing will also be required. A monitoring report shall be completed after each inspection and shall be included in the SWPPP. The monitoring plan shall include a process to evaluate of the effectiveness of the erosion control measures at controlling runoff. The contractor shall use the form provided in the Monitoring Guidance Manual.

Should laboratory testing of water be required, the contractor shall select an appropriate laboratory that is licensed, accredited, and certified by the Arizona Department of Health Services. The contractor shall provide such information to the Engineer for approval at least 15 working days before submittal of any samples for analysis.

The contractor's erosion control coordinator shall be responsible for the preparation, accuracy, and completeness of all reports and readings required by the monitoring plan, and shall coordinate all submittals required in the Monitoring Guidance Manual, including the monthly discharge monitoring report, with the Engineer and ADEQ.

The monitoring plan shall be initiated concurrently with the start of ground disturbing activity or when any water, including storm water, is discharged from the site, whichever occurs first, and shall continue throughout the contract period.

(3) Preliminary Submittal:

The contractor shall submit two copies of the draft SWPPP, including all information specified herein, to the Engineer at the preconstruction conference if possible, but not later than 14 calendar days from the Department's approval of the contractor's Erosion Control Coordinator.

The Engineer will provide the contractor with the following forms at the preconstruction conference:

- Maintenance, inspection, and site-monitoring report forms;
- Other record keeping forms and procedures, as needed; and
- Notice of Intent (NOI) and Notice of Termination (NOT) forms.

Notice of Intent and Notice of Termination blank forms are also available on the internet at http://azdeq.gov/function/forms/appswater.html#cgp.

Within 10 calendar days from the SWPPP submittal, the Engineer and contractor will jointly review the contractor's draft SWPPP, and include any additional revisions directed by the Engineer. The finalized SWPPP shall meet the terms and conditions of the AZDPES general permit, and be compatible with construction sequencing and maintenance of traffic plans.

When agreement has been reached, the Engineer and contractor's authorized representative will sign the finalized SWPPP. The contractor shall file a Notice of Intent (NOI). The contractor shall also submit the finalized SWPPP to ADEQ for review and approval as specified in Subsection 104.09(C).

After the review and approval process specified in Subsection 104.09(C), the contractor shall implement the requirements of the SWPPP. No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been approved, the NOI completed and filed in accordance with Subsection 104.09(C), and the SWPPP implemented.

(C) Notice of Intent (NOI) and SWPPP Submittal:

After the project Storm Water Pollution Prevention Plan (SWPPP), including monitoring plan, has been approved by the Engineer, the contractor shall submit the SWPPP to ADEQ at the address shown below for review. The contractor shall also complete a Notice-of-Intent (NOI) form for the project and submit the form to ADEQ at the same time. The NOI includes a certification statement which must be signed and dated by a responsible corporate officer of the contractor, as defined in Part VIII.J.1 of the AZPDES General Permit, and include the name and title of that officer.

Arizona Department of Environmental Quality
Surface Water Section/Permits Unit/Stormwater NOIs (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to (602) 771-4528

Within 32 business days of receipt, ADEQ will notify the Engineer whether work may proceed under the AZPDES general permit, or whether the SWPPP needs revisions. A business day shall be defined as a day, exclusive of Saturdays, Sundays and State-recognized holidays, during which ADEQ is open for business. An Authorization Certificate will be issued by ADEQ if the NOI and SWPPP have been accepted. If notification is not received in this time-frame, the contractor shall contact ADEQ and verify that the NOI and SWPPP have been received and accepted prior to commencement of construction activities. The contractor shall provide a copy of the authorization certificate to the Engineer, and keep a copy with the NOI.

The NOI may also be submitted electronically, through ADEQ's Smart NOI website at http://az.gov/webapp/noi/main.do. Regardless of the method of submittal, the contractor shall provide a copy to the Engineer.

Should ADEQ determine that revisions are needed, the contractor's erosion control coordinator shall make the necessary changes and, after acceptance by the Engineer, re-submit the SWPPP to ADEQ for approval. Prior to approval, ADEQ may require that the SWPPP be modified to implement specific controls or design criteria, or may require changes to the monitoring plan. Additional erosion control measures or devices required by ADEQ but not included in the bidding schedule will be paid in accordance with Subsection 109.04(D). When re-submittal is required, the contractor shall not be authorized to begin SWPPP implementation until final approval is received from ADEQ.

No extension of contract time and, except as required for the monitoring plan, as specified in Subsection 104.09(J), no compensation will be allowed for the 32 business-day review period required by ADEQ, the cost being considered as included in contract items. The contractor shall anticipate needing a minimum of seven weeks for the ADEQ review process, during which period no clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP can be started. If the ADEQ approval process requires more than seven weeks, the contractor may seek, and the Engineer may grant, a non-compensable extension of time for the approval of the SWPPP in accordance with the terms of Subsection 108.08. The time extension shall not exceed 45 calendar days.

At any time after authorization, ADEQ may determine that the contractor's stormwater discharges may cause or contribute to non-attainment of any applicable water quality standards. If ADEQ makes that determination, the contractor will be notified in writing. The contractor shall develop a supplemental erosion control action plan describing SWPPP modifications to address the identified water quality concerns. If the written notice from ADEQ requires a response, failure to respond in a timely manner constitutes a permit violation. All responses shall be in accordance with the AZPDES general permit.

If there is a potential to discharge into a municipal separate storm sewer system (MS4), a copy of the Authorization Certificate shall be submitted to the owner/operator of the system. Also, contractor's operating under an approved local sediment and erosion plan, grading

plan, or stormwater management plan shall submit a copy of the Authorization Certificate to the local authority upon their request.

The contractor shall post its NOI and the information required in the AZPDES general permit on the construction-site bulletin board throughout the duration of the project. A copy of the AZPDES general permit shall also be kept at the construction site at all times.

(D) Contractor's Erosion and Pollution Control Coordinator:

(1) General Requirements:

The contractor shall designate a competent person as the contractor's erosion and pollution control coordinator (referred to elsewhere herein as erosion control coordinator) responsible for finalizing the draft SWPPP from the preliminary information included with the plans. The erosion control coordinator shall also be responsible for implementing, monitoring, and revising the approved SWPPP throughout the project, for making the required inspections, and for implementing any other permit requirements stipulated in the AZPDES general permit. The person shall be knowledgeable in the principles and practice of erosion and sediment controls, and possess the skills to assess conditions at the site that could impact stormwater quality and the effectiveness of the contractor's erosion control measures used to control the quality of the stormwater discharges.

Stormwater runoff from construction activities may contaminate adjacent bodies of water, or otherwise exceed water quality standards, and result in possible major civil and/or criminal penalties. Therefore the Engineer will closely consider the qualifications of the contractor's erosion control coordinator. The contractor shall not assume that the person proposed as erosion control coordinator will be acceptable to the Department merely because the experience and education requirements listed herein have been met.

The contractor bears all risks and liabilities for the failure of its erosion control coordinator to properly implement the requirements of the AZPDES general permit.

The person shall be capable of identifying existing and predictable effects of the contractor's operations, and shall have complete authority to direct the contractor's personnel and equipment to implement the requirements described herein, including prompt placement of corrective measures to minimize or eliminate pollution and damage to downstream watercourses. The erosion control coordinator shall also be familiar with procedures and practices identified in the SWPPP, and shall ensure that emergency procedures are up to date and available at project sites.

The erosion control coordinator shall at all times be aware of the contractor's work activities, schedule, and effect of the work on the environment, and shall, at any time, be accessible to direct the contractor's personnel to replace or repair erosion control measures as necessary. Should the erosion control coordinator not be present at the project site on a full-time basis, the contractor shall establish procedures to ensure that its erosion control coordinator is promptly notified of any damage or displacement of the required erosion control measures, whether from construction, vandalism, or other causes. In addition, the

contractor shall provide the Engineer with a phone number through which the erosion control coordinator can be contacted at any time, 24 hours a day, seven days a week, including holidays. The erosion control coordinator must be present at the jobsite within 24 hours of such call being placed.

The erosion control coordinator shall also be aware of and comply with all requirements of the AZPDES general permit to address discharges at the site associated with the contractor's activities other than construction, including contractor staging areas, and other potential pollutant and off-site material storage and borrow areas.

Failure of the contractor to properly maintain the erosion control measures required in the approved SWPPP will be cause for the Engineer to reject the erosion control coordinator and issue a stop work order, as specified in Subsection 104.09(G).

(2) Certification Requirements:

The proposed erosion control coordinator shall have successfully completed the two-day (16 hour) "Erosion Control Coordinator" training class provided by the Associated General Contractors (Arizona Chapter), phone (602) 252-3926. In addition, the proposed erosion control coordinator shall have documented experience equal to a minimum of one year from either of the following two categories:

(a) Experience in the development and implementation of Stormwater Pollution Prevention Plans (SWPPP's), as specified in the AZPDES general permit referenced herein, or the National Pollutant Discharge Elimination System (NPDES) for highway construction projects. The proposed erosion control coordinator's experience shall demonstrate full-time responsibility for directly supervising construction personnel in the installation, monitoring, and maintenance of erosion control items.

(b) Experience in re-vegetation or restoration of disturbed areas in environments similar to those on the project. Experience in temporary or permanent stabilization of disturbed areas will also be considered. The proposed erosion control coordinator's experience shall demonstrate full-time responsibility for directly supervising personnel in temporary or permanent re-vegetation or restoration of disturbed areas.

The contractor's documentation shall provide details indicating the types of relevant experience, and shall provide the number of months of each type of experience to be considered for approval. Documentation shall also indicate that the proposed erosion control coordinator has completed the "Erosion Control Coordinator" training class prior to consideration for approval.

The erosion control coordinator shall also meet one of the following requirements:

1. Registration in the State of Arizona as a Landscape Architect, with a minimum of one year of experience in the fields of erosion control or sediment transport.

2. Registration in the State of Arizona as a Professional Engineer with a minimum of one year of experience in the fields of erosion control or sediment transport.
3. Certification by the International Erosion Control Association (IECA) as a Certified Professional in Erosion and Sediment Control.

To be considered for approval, the contractor's documentation shall include a copy of the proposed erosion control coordinator's certification or registration. Should the proposed erosion control coordinator be a registered Landscape Architect or Professional Engineer in the State of Arizona, the contractor shall also provide documentation indicating the types of relevant experience, and the number of years of each type of experience to be considered for approval.

(3) Acceptance:

The contractor shall submit documentation indicating the qualifications of the proposed erosion control coordinator to the Engineer for approval within seven calendar days of the notice of award of the contract. The Engineer will review the proposed candidate's information within seven calendar days. The contractor may begin development of the draft SWPPP from the preliminary information included with the plans prior to approval of the erosion control coordinator. However no clearing, grubbing, earthwork, or other work elements that, in the opinion of the Engineer, may be subject to the requirements of the AZPDES general permit shall be started until the erosion control coordinator has been approved, the SWPPP finalized and implemented, and the NOI completed and filed, all as specified herein.

(E) "Good Housekeeping" Practices and Requirements:

The SWPPP shall also specify the contractor's "good housekeeping" practices and requirements, including vehicle wash-down areas, onsite and off-site tracking control, protection of equipment storage and maintenance areas, methods to minimize generation of dust, and sweeping of highways and roadways related to hauling activities. The contractor shall show each planned location of service and refueling areas on the SWPPP's site map. Changes to the contractor's "good housekeeping" practices that are related to construction phasing shall also be shown on the SWPPP.

The contractor shall take aggressive actions, considering all conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oil, bitumens, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels leading to streams, lakes or reservoirs. The SWPPP shall include the implementation of spill prevention and material management controls and practices to prevent the release of pollutants into stormwater. The SWPPP shall also provide storage procedures for chemicals and construction materials; disposal procedures; cleanup procedures; the contractor's plans for handling such pollutants; and other pollution prevention measures as required.

Machinery service and refueling areas shall be located away from streambeds or washes, and in a manner which prevents discharges into steams or washes.

Waste materials from blasting, including explosives containers, shall be disposed of off-site in accordance with applicable federal regulations. Other waste materials, such as used cans, oils, machine and equipment parts, paint, hazardous materials, plastic and rubber parts, discarded metals, and building materials, shall be removed from the construction site and disposed of according to applicable state and federal regulations.

Where the contractor's working area encroaches on a running or intermittent stream, barriers shall be constructed and maintained between the working areas and the stream bed adequate to prevent the discharge of any contaminants. The SWPPP shall identify the location of streams that may be affected and the specific types of barriers proposed for protecting these resources.

Unless otherwise approved in writing by the Engineer, fording of running streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used whenever an appreciable number of crossings is necessary.

Temporary bridges or other structures proposed by the contractor shall be designed to accommodate the ten-year storm event if to remain in place for up to a one-year period. If a structure is planned to remain in place for longer than one year, the hydraulic conveyance may be subject to more stringent requirements. The contractor shall be responsible for all permits, authorizations, and environmental clearances that may be necessary to approve the use of such structures. The contractor shall submit the design and all required documentation to the Engineer for approval. The contractor is advised that the review and approval process for such structures could be lengthy. Unless otherwise provided for in the contract, the contractor shall be responsible for all costs associated with the design and construction of such structures. Also, no extension of contract time will be allowed for any review and approval periods, or for the time required to construct temporary bridges proposed by the contractor.

Mechanical equipment shall not be operated in running streams.

Material which is to be stockpiled or disposed of off-site shall be in accordance with Subsection 107.11.

Streams, lakes and reservoirs shall be cleared of all falsework, piling, debris or other obstructions resulting from the contractor's activities, inadvertently placed thereby or resulting from construction operations, within 24 hours from the time the obstruction was observed.

Spill prevention, containment and counter-measures shall be included in the SWPPP if the volume of project-site fuel in a single container exceeds 660 gallons, or if the total fuel storage volume at any one site exceeds 1,320 gallons.

In the event of a spill of a hazardous material, the contractor shall follow the provisions of Subsection 107.07. In addition, the erosion control coordinator shall modify the SWPPP as necessary within 14 calendar days of the discharge. The SWPPP shall be modified to include a description of the release, the circumstances leading to the release, and the date of the release.

The contractor shall assist in any efforts to clean up hazardous material spills, as directed by the Engineer or other authorities. Soil contaminated from spills shall be disposed of according to applicable state and federal regulations.

(F) Inspections:

(1) General:

The Engineer and the erosion control coordinator shall inspect the project at least every seven calendar days, and also within 24 hours after any storm event of 0.50 inches or more. The inspections shall include disturbed areas that have been temporarily stabilized, areas used for storage of materials, locations where vehicles enter or exit the site, and all of the erosion and sediment controls included in the SWPPP. The contractor shall monitor rainfall on the site with a commercially manufactured rain gauge accurate to within 0.10 inches of rain. Rainfall records shall be submitted to the Engineer on a weekly basis.

For each inspection, the contractor's erosion control coordinator shall complete and sign a Compliance Evaluation Report as described in the permit. Copies of the completed reports shall be retained on-site in the SWPPP file throughout the construction period. The erosion control coordinator shall also provide a copy of the report to the Engineer following each inspection.

(2) Adjustments:

When deficiencies are noted during scheduled inspections, the contractor shall take immediate steps to make the required corrections as soon as practical. Deficiencies shall be fully corrected, to the satisfaction of the Engineer, within four calendar days or by the next anticipated storm event, whichever is sooner. Deficiencies noted between designated inspections shall be corrected within the time period directed by the Engineer, but not later than four calendar days after observation.

Direct inflows of sediment into a watercourse shall be corrected by the end of the same day or work shift in which the inflow was observed.

In accordance with Subsection 104.09(G), failure to implement adjustments within the specified time periods may be cause for the Engineer to reject the contractor's erosion control coordinator and issue a stop work order for the affected portions of the project.

(G) Non-Compliance:

The Engineer may reject the contractor's erosion control coordinator if, in the opinion of the Engineer, the conditions of the AZPDES general permit or the approved SWPPP are not being fulfilled. Rejection of the contractor's erosion control coordinator shall be for failure to complete any of the following:

(1) Should the Engineer determine that the SWPPP is not being properly implemented, the contractor will be notified in writing of such deficiencies. The contractor's erosion control coordinator shall fully implement, to the satisfaction of the Engineer, the requirements of the approved SWPPP within three working days.

(2) Should any corrective measures required in Subsection 104.09(F)(2) not be completed within the time periods specified therein, the Engineer will notify the contractor in writing. The contractor shall complete all required corrective measures within two calendar days of such notification, except that direct inflows of sediment into a watercourse shall be corrected within 24 hours.

(3) Should the Engineer determine that routine maintenance of the project's erosion control measures is not being adequately performed, the contractor will be notified in writing. Within three working days, the contractor's erosion control coordinator shall demonstrate, to the satisfaction of the Engineer, that such steps have been taken to correct the problem.

In the event of the erosion control coordinator's failure to comply with any of the above requirements, the Engineer will direct the contractor to stop all affected work and propose a new erosion control coordinator as soon as possible. However, all erosion and pollution control items specified in the SWPPP shall be maintained at all times. No additional work on construction items affected by the SWPPP will be allowed until a new erosion control coordinator has been approved by the Engineer. The contractor will not be allowed compensation or an extension of contract time for any delays to the work because of the failure of the contractor's erosion control coordinator to properly fulfill the requirements of the approved SWPPP.

(H) Record of Major Construction And Erosion Control Measures:

In addition to the compliance evaluation report, the contractor shall keep records of the major construction activities, including the erosion control measures associated with these activities. In particular, the contractor shall keep a record of the following activities:

- The dates when major grading activities (including clearing and grubbing, excavation and embankment construction) occur in a particular area or portion of the site.
- The dates when construction activities cease in an area, temporarily or permanently.
- The dates when an area is stabilized, temporarily or permanently.

Such information shall be noted within two working days of the occurrence of any of the listed activities, and a copy of the report shall be included in the SWPPP. The contractor

shall also provide one copy of such records, and any subsequent up-dated information, to the Engineer within three working days of completion or amendment of the report.

(I) Notice of Termination (NOT):

Upon final acceptance by the Engineer in accordance with Subsection 105.20, and as specified herein, the contractor shall complete and mail a Notice-of-Termination (NOT) for the project to the address shown below. The NOT submitted by the contractor includes a certification statement which must be signed and dated by an authorized representative of the contractor, as defined in Part VIII.J.2 of the AZPDES General Permit, and include the name and title of that authorized representative.

Arizona Department of Environmental Quality
Surface Water Section/Stormwater & General Permits (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to 602 771-4528

The NOT may also be submitted electronically, through ADEQ's Smart NOI website at http://az.gov/webapp/noi/main.do. Regardless of the method of submittal, the contractor shall provide a copy to the Engineer.

When the approved SWPPP includes the use of Class II seeding as an erosion control measure, seeded areas shall be maintained for 45 calendar days, as specified in the special provisions, and approved by the Engineer before the contractor's NOT can be submitted. Seeding, when used in the SWPPP as an erosion control measure, will not be considered as part of any Landscape Establishment Phase that may be included with the project.

(J) Measurement and Payment:

Measurement and payment for work specified in the SWPPP will be made in accordance with the requirements of Section 810. Erosion control and pollution prevention work specified in the contract which is to be accomplished under any of the other various contract items will be paid for as specified under those items.

If a force account pay item for erosion control is included in the bidding schedule, the contractor may be reimbursed for such additional erosion control items proposed by the contractor but not included with the plans or specifications. Such additional erosion control items must be approved in writing by the Engineer before use. Erosion control items approved by the Engineer will be paid in accordance with Subsection 109.04(D). No measurement or payment will be made for such additional items not approved by the Engineer.

No measurement or payment will be made to the contractor for time spent in preparing, reviewing, and revising the Storm Water Pollution Prevention Plan (SWPPP), including the monitoring plan, or providing other required documentation, the cost being considered as

included in the price of contract items. No measurement or payment will be made for the contractor's erosion control coordinator; for inspections; or the contractor's "good housekeeping" practices and requirements; the costs being considered as included in contract items.

No measurement or payment will be made, except as specified below for external laboratory testing, for the labor, equipment, and materials required in the monitoring plan, the costs being considered as included in contract items.

If an item is included on the bidding schedule for Construction Monitoring (Laboratory Testing), the contractor will be reimbursed for those samples tested, as required in the approved monitoring plan, by an accredited laboratory approved by the Arizona Department of Health Services. The contractor will be reimbursed for the invoice amount of each required test, plus an additional markup of ten percent of the invoice amount.

Unless otherwise specified, no measurement or payment will be made for maintenance of temporary and permanent erosion control measures, the cost being considered as included in contract items.

104.10 Contractor's Responsibility for Work: of the Standard Specifications is revised to read:

The contractor shall implement the requirements of the Arizona Pollutant Discharge Elimination System (AZPDES) for erosion control due to storm water runoff during construction, as specified above in Subsection 104.09, Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs.

Until final written acceptance of the project by the Engineer, the contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from any other cause, whether arising from the execution or from the nonexecution of the work. The contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance. No reimbursement shall be made for work necessary due to the contractor's failure to comply with the requirements of the SWPPP.

Except as specifically provided under Subsection 104.04, in case of suspension of work from any cause whatever, the contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project and provide for normal drainage. The contractor shall also erect any necessary temporary structures, signs or other facilities. During such period of suspension of work, the contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings and soddings, furnished under its contract and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

Appendix A

ADOT Specifications

Specification 805 SEED
Seeding

** ADJUST CONTRACT TIME IF NECESSARY
TO ALLOW FOR 45-DAY MAINTENANCE PERIOD. **

** INSERT JOB SPECIFIC LANGUAGE FOR TYPE OF SEED AND SPECIFIC LOCATIONS ON PAGE 3. INCLUDE SUBSTITUTION VALUES IN TABLE 1. **

(805SEED, 01/23/07)

ITEM 8050003 - SEEDING (CLASS II):

1.0 Description:

The work under this item shall consist of furnishing all materials, preparing the soil, applying Class II seed, and establishing the seeded areas.

Areas to be seeded are those disturbed or unvegetated areas listed herein, shown on the plans, called for in the contractor's erosion control plan, or designated by the Engineer.

Seeding may be included as part of a landscape project as specified in Section 807, or used for erosion control as part of a Storm Water Pollution Prevention Plan (SWPPP) as specified in Subsection 104.09 of the specifications, or both.

In either case, seeding shall be accomplished in two stages. The first stage shall consist of tillage, furnishing and applying chemical fertilizer, furnishing and planting the contract-specified seed mix, and furnishing, applying and affixing mulch. The second stage, beginning after the first stage has been accepted by the Engineer, shall be a 45 calendar-day period during which time the contractor shall be responsible for maintaining and stabilizing the seeded and mulched areas, and restoring damaged or eroded areas.

Seeding used as part of a SWPPP shall be completed, including the 45 calendar-day maintenance period, before the end of the contract time, or sooner as specified in the SWPPP. Seeding used as part of a landscape project shall be completed, including the 45 calendar-day maintenance period, before the end of the Construction Phase. When seeding is part of a landscape project, the maintenance activities described herein shall be in addition to the work specified in Section 807 for landscape establishment. No time extension will be granted for seeding not completed as specified herein, including the 45 calendar-day maintenance period, before the end of the contract time or Construction Phase as applicable.

2.0 Materials:

2.01 General:

Appropriate documentation, as specified below, shall be submitted to the Engineer a minimum of 30 calendar days before the start of a scheduled seeding activity. No materials shall be delivered to the site until the documentation has been approved by the Engineer.

Unless otherwise specified, Certificates of Compliance conforming to the requirements of Subsection 106.05 of the specifications shall be provided for all materials.

Unless otherwise specified, the contractor shall perform all testing, or provide test results to the Engineer from accredited laboratories as specified herein.

2.02 Seed:

(A) General Requirements:

The species, variety, and strain of seed (designated elsewhere herein as contract-specified seed) shall be as shown on the plans or as specified herein. The contract-specified seed shall be obtained from seed suppliers through harvesting of wildland collections, or field-grown seeds grown prior to or during the contract period.

Within 30 calendar days after the award of contract, the contractor shall submit the name of the seeding subcontractor to be used, along with written confirmation from seed suppliers and collectors, on their letterhead, that the source(s) for the contract-specified seed has been secured. If any of the contract-specified seed is expected to not be available during the contract period prior to seeding, in accordance with Subsection 2.02(B) below, the contractor shall notify the Engineer at this same time.

The seed shall be delivered to the project site unmixed in standard, sealed, undamaged containers for each seed species. Each container shall be labeled in accordance with the appropriate provisions of the Arizona Revised Statues and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Labels shall indicate the variety or strain of seed, the percentage of germination, purity and weed content, the date of analysis which shall not be more than nine months prior to the delivery date, and testing information. A Certificate of Analysis from an accredited seed-testing laboratory, and conforming to Subsection 106.05 of the specifications, shall accompany each container of seed.

Unless otherwise approved by the Engineer, weed content of the contract-specified seed mix shall not exceed 0.5 percent.

The contractor shall provide all seed tag labels to the Engineer. No payment will be made for seed unless tag labels from all seed to be used on the project have been submitted as specified.

The contractor shall store seed under dry conditions, at temperatures of between 35 °F and 120 °F, and out of direct sunlight. Prior to using the seed, the contractor shall provide a certification letter to the Engineer that the seed was stored as specified herein.

Legume seed shall be inoculated with appropriate bacteria cultures approved by the Engineer, in accordance with the culture manufacturer's instructions.

Tetrazolium staining shall be acceptable to test for germination and hard seed. Cut or fill testing will not be allowed. As directed by the Engineer, seeds with an expiration date past

the acceptable test date or not meeting the specified conditions for storage shall be retested by the contractor. The Engineer may perform random sampling of seeds throughout the project. Mixing of the specified seed at the project site shall be under the supervision of the Engineer.

Application rates of seed as specified are for Pure Live Seed (PLS). PLS is determined by multiplying the sum of the percent germination of seeds, including hard or dormant seeds, by the percent purity.

Seed mix species and the Pure Live Seed (PLS) rates are shown in Table 1 below:

***** INSERT JOB SPECIFIC LANGUAGE FOR TYPE OF SEED AND SPECIFIC LOCATIONS. INCLUDE SUBSTITUTION VALUES IN TABLE 1 BELOW. *****

TABLE 1			
SEED MIX			
Botanical Name	Common Name	PLS Rate (Pounds Per Acre)	Per Pound Value for Substitution (see text)

(B) Seed Substitution:

No substitution of the contract-specified seed will be allowed unless evidence is submitted documenting that the contractor has made a diligent effort to obtain the contract-specified seed, from either seed suppliers or collectors, and that the contract-specified seed will not become available prior to the time specified for seeding in the contractor's approved construction schedule.

The contractor may also request a substitution if the lowest price available for the contract-specified seed is greater than 2.0 times the value shown in Table 1. The contractor shall provide documentation from a minimum of three seed suppliers or collectors supporting such request. Documentation shall include copies of the invoices from each supplier or collector. Only those invoices obtained within three weeks of the time specified for seeding in the contractor's approved construction schedule will be acceptable.

Should a substitution of the contract-specified seed be requested for one of the two reasons specified above, and the contractor's documentation is approved by the Engineer, the Department's Roadside Development Section will specify an alternate seed within five working days of the Engineer's approval of the contractor's documentation. The alternate seed will only be allowed when there is an insufficient quantity of the contract-specified seed, as determined in the previous two paragraphs, for the areas to be seeded as called for herein or as required for erosion control. The contractor shall obtain and apply the alternate seed, as required, to all such remaining areas. Unless otherwise approved by the Engineer, the approved alternate seed will only be allowed until such time that

contract-specified seed meeting the availability and price requirements specified herein can be provided.

For each pound of contract-specified seed not provided by the contractor, the value indicated in Table 1 will be deducted from the contract amount. The price per pound for the alternate seed selected by the Department, as specified above, will be determined in accordance with Subsection 109.04(D)(2) of the specifications. No additional adjustments will be made for substituting the alternate seed, the costs being considered as included in the contract item for seeding.

No payment will be made for areas seeded with unapproved seed.

2.03 Tacking Agent:

Tacking agent shall be a naturally occurring organic compound and be non toxic. It shall be a product typically used for binding soil and mulch in seeding or erosion control operations. Approved types shall consist of mucilage or gum by dry weight as active ingredient obtained from guar or plantago. The tacking agent shall be labeled indicating the type and mucilage purity.

The contractor shall have the tacking agent swell volume tested by an approved testing laboratory using the USP method. The standard swell volume shall be considered at 30 milliliters per gram. Material shall have a swell volume of at least 24 milliliters per gram. Certified laboratory test results shall be furnished to the Engineer for each shipment of homogenous consistency to be used on project areas or as directed by the Engineer. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser volume shall have the tacking agent rate increased by the same percentage of decrease in swell volume from the standard 30 milliliters per gram. Material tested with greater volume may reduce tacking agent rates by the same percentage of increase in swell volume from the standard 30 milliliters per gram. Tacking agent shall be pure material without other starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.

2.04 Wood Fiber Mulch:

Wood cellulose fiber mulch shall conform to the requirements of Subsection 805-2.03 of the Standard Specifications, except as modified herein, and shall be from thermo-mechanically processed wood, processed to contain no growth germination inhibiting factors. The mulch shall be from virgin wood manufactured and processed so the fibers will remain in uniform suspension in water under agitation to form homogenous slurry. Paper products will not be considered as virgin wood. The wood fiber mulch shall have the properties shown in Table 2 below:

TABLE 2	
Virgin Wood Cellulose Fiber	90% min.
Recycled Cellulose Fiber	10% max.
Ash Content	0.8% +/-0.3%
PH	4.5 +/-1.0

Water Holding Capacity	10:1 (water:fiber)

2.05 Straw Mulch:

Straw mulch shall conform to the requirements of Subsection 805-2.03 of the Standard Specifications, except as modified herein, and shall be from the current season's crop. A letter of certification from the supplier shall be required stating that the straw was baled less than 12 months from the delivery date.

All wheat straw shall be free from noxious weeds in compliance with the standards and procedures of the North American Weed Management Association (NAWMA) or the Arizona Crop Improvement Association (ACIA). The contractor shall provide documentation, including a transit certificate, and appropriate labels and/or marking twine, from the ACIA or NAWMA that wheat straw to be used for mulch is free of noxious weeds. The wheat straw shall be accompanied by the certification, labels and/or marking twine at the time of delivery to the project site. Wheat straw delivered to the project without such information will be rejected, and promptly removed from the project.

Rye straw and oat straw will not be acceptable.

2.06 Chemical Fertilizer and Sulfur:

Chemical fertilizer shall conform to the requirements of Subsection 805-2.06 of the specifications and shall be the kind hereafter specified. Fertilizer shall be composed of a mixture of one part sulfur-coated urea 25-4-8, one part monammonium phosphate 11-52-0, and one part methylene urea 38-0-0. The sulfur-coated urea, a blended fertilizer 25-4-8, shall have 80 percent of the nitrogen defined as slow release, and contain 5 percent Iron, 10 percent sulfur and trace amounts of zinc and manganese. The resulting 24-18-2 chemical blended fertilizer, as specified herein, shall be applied at the rate of 200 pounds per acre. In addition to the fertilizer mixture, agricultural sulfur compounds, comprised of between 80 percent and 96 percent sulfur, shall be applied at the rate of 200 pounds per acre.

2.07 Water:

Water shall be free of oil, acid, salts or other substances which are harmful to plants. The source shall be as approved by the Engineer prior to use.

2.08 Compost:

Compost shall consist of composted organic vegetative materials. Prior to being furnished on the project, compost mulch samples shall be tested for the specified microbiological and nutrient conditions, including maturity and stability, by a testing laboratory approved for testing of organic materials. Written test results shall be submitted to the Engineer for approval.

Compost material shall be dark brown in color with the parent material composted and no longer visible. The structure shall be a mixture of fine and medium size particles and

humus crumbs. The maximum particle size shall be within the capacity of the contractor's equipment for application to the constructed slopes. The odor shall be that of rich humus with no ammonia or anaerobic odors.

Compost shall also meet the requirements of Table 3:

TABLE 3	
Cation Exchange Capacity (CEC)	Greater than 50 meq/100 g
Carbon:Nitrogen Ratio	Less than 20:1
pH (of extract)	6.0 – 8.5
Organic Matter Content	Greater than 25%
Total Nitrogen (not added)	Greater than 1%
Humic Acid	Greater than 5%
Maturity Index	Greater than 50% on Maturity Index at a 10:1 ratio
Stability	Less than 100 mb 02/Kg compost dry solids – hour

When specified, compost shall be applied to areas to be seeded at the specified rate per acre prior to final tillage for incorporation into the soil seedbed. Unless otherwise specified, compost shall be applied to areas to be seeded at 12 cubic yards per acre prior to final tillage for incorporation into the soil seedbed.

2.09 Soil Conditioners:

Soil conditioners, when required, will be as shown in the Special Provisions.

3.0 Construction Requirements:

3.01 General:

The contractor shall notify the Engineer at least two days prior to commencing seeding operations.

The equipment and methods used to distribute seeding materials shall provide an even and uniform application of seed, mulch, and other materials at the specified rates.

Unless specified otherwise in the Special Provisions, seeding operations shall not be performed on undisturbed soil outside the clearing and grubbing limits of the project or on steep rock cuts.

The contractor shall coordinate the seeding operations with the grading operations to determine mobilization frequency as embankment and cut slopes are finished throughout the duration of the project. Seeding shall be done during suitable weather and soil conditions for tillage and placement of materials. Seeding operations shall not be performed when wind would prevent uniform application of materials or would carry seeding materials into areas not designated to be seeded.

The contractor shall not expose an area greater than 750,000 square feet at any one location within the project limits until the seeding proposed for that portion of the project has been installed and accepted by the Engineer. Seeding shall be accomplished within 14 days after slopes and disturbed areas have been completed. Seeding operations shall comply with Subsection 104.09 and the applicable portions of Section 203 of the specifications, and as directed by the Engineer.

Frequent mobilizations may be required to accomplish seeding as specified herein. The Department will consider the cost of such multiple mobilizations to be included in the price bid for the seeding. No adjustments will be made to the contract for the number of seeding mobilization activities. Should the contractor fail to provide seeding for a sub-area as specified herein, the Engineer will immediately notify the contractor of such non-compliance. Should the contractor fail to immediately remedy the unstabilized area, the Engineer may suspend work until such seeding stabilization has been completed, or proceed to provide the necessary seeding stabilization. The entire cost of such work will be deducted from the monies due or to become due to the contractor. In addition, no adjustment to the contract time will be made for suspensions resulting from the contractor's failure to provide seeding for a sub-area within the time periods specified herein.

Seeding shall also be applied to all new earthen and milled asphaltic concrete shoulder build-up areas. Unless directed by the Engineer, shoulder build-up areas shall not be tilled prior to seeding. Seeding and mulching shall be done in two separate steps. For the first step, seed shall be applied by hydroseeding for both types of shoulder build-up areas. For the second step, seeded shoulders comprised of milled asphaltic concrete shall have wood fiber mulch and tacking agent applied. For seeded earthen shoulders, the second step shall be application of straw mulch with tacking agent.

3.02 Tillage:

Where equipment can operate, the area to be seeded shall be prepared with a ripper bar, chisel plow, or with other devices, which will provide thorough soil cultivation to the depth specified below. For areas too steep to be prepared for seeding after the slope has been completed, as determined by the Engineer, tillage shall be accomplished with appropriate equipment as the slope is being constructed. On slope areas, all tillage shall be directional along the contours of the areas involved. All areas, which are eroded shall be restored to the specified condition, grade and slope as directed prior to seeding.

On cut and fill slopes the operations shall be conducted in such a manner as to form minor ridges thereon to assist in retarding erosion and favor germination of the seed.

Except as specified herein, slopes shall be constructed in accordance with Subsection 203-3.03(B) of the specifications. Cut slopes flatter than 3:1 (horizontal to vertical) shall be tilled a minimum of 12 inches in depth, and fill slopes flatter than 3:1 shall be tilled to a six-inch minimum depth. All slopes steeper than 3:1, and areas which could potentially be affected by underground utilities, shall be tilled to a minimum 6 inches in depth, and left in a roughened condition as they are constructed.

Care shall be taken during the seeding operations to prevent damage to existing trees and shrubs in the seeding area in accordance with the requirements of Subsection 107.11 of the specifications.

Tillage may require passing the equipment over the area several times to provide thorough soil cultivation. Furrows from tillage shall be no more than 12 inches apart. No work shall be done when the moisture content of the soil is unfavorable to tillage.

All competitive vegetation shall be uprooted prior to seeding and the soil shall be left in a friable roughened condition free of clods or large stones over four inches in any dimension and other foreign material that would interfere with the seeding operation. Exposed stones larger than four inches shall be removed and disposed of in an approved manner prior to grading and seeding.

Regardless of the method of seeding application, all areas prepared with tilling shall have fertilizer and compost uniformly applied and incorporated into the soil at the specified rates per acre with final tillage and seeding. Slopes 3:1 and flatter shall have fertilizer and compost tilled into a minimum of the top four inches of the surface. Slopes steeper than 3:1 shall have fertilizer, soil amendments, and compost applied for incorporation into the soil as directed by the Engineer.

For mini-benched slopes, fertilizer, compost, and soil amendments shall be applied to at the specified rates with no tillage or incorporation.

3.03 Seeding:

(A) General:

Drill seeding with straw mulch shall be considered as the preferred method of seed application when practicable. Unless otherwise specified by the Engineer, drill seeding shall be used for all areas with slopes of 3:1 or less.

Hydroseeding shall be the alternative method for seed distribution for slopes in excess of 3:1, and where drill seeding is not practicable or suitable for soil conditions and seed types, as determined by the Engineer.

Straw mulch or wood fiber mulch shall be applied on drilled or hydroseeded areas with crimping and tacking, as specified herein or directed by the Engineer, within 24 hours of seed application.

Unless otherwise specified in the Special Provisions, Class II seeding areas shall not be watered after planting.

(B) Drill Method:

After the tillage and incorporation of fertilizer and compost is completed and accepted by the Engineer, seed shall be planted with a drill seeder capable of accurately metering the

specific seed mix. Use of a drill seeder shall not damage the prepared seedbed, and shall provide a soil cover over the planted seed.

Seed shall be planted approximately 1/4 inch deep, with a maximum depth of 1/2 inch. The distance between the furrows produced using the drill process shall not be more than eight inches. If the furrow openers on the drill exceed eight inches, the area shall be drilled twice. Seeding shall be done with grass seeding equipment with double disc openers, depth bands, packer wheels or drag chains, rate control attachments, seed boxes with agitators and separate boxes for small seed. Seed of different sizes shall be sowed from at least two separate boxes adjusted or set to provide the planting rate as specified.

(C) Hydroseed Method:

Areas and seed types not suitable for drill-seeding, as directed by the Engineer, shall be hydroseeded with straw mulch or wood fiber mulch applied following application of the seed. The contract-specified seed shall be applied in a slurry containing a minimum of 40 pounds tacking agent and 200 pounds of wood fiber mulch per acre. Seed shall not be in the slurry for more than 30 minutes. Seed planted by this method will not require covering with soil. Soil areas shall be tilled to produce loose and friable surfaces with crusted hard soils broken up prior to hydroseeding.

3.04 Applying Straw Mulch:

(A) General:

Within 24 hours after each area is planted, straw mulch shall be uniformly applied at the minimum rate of 2 1/2 tons per acre for crimped and tacked areas and minimum 2 tons per acre for tacked-only areas. Unless otherwise specified by the Engineer, straw mulch shall be applied to both drill seeded and hydroseeded areas.

During seeding and mulching operations, care shall be exercised to prevent drift and displacement of materials. Mulch material which is placed upon trees and shrubs, roadways, structures and upon any areas where mulching is not specified or which is placed in excessive depths on mulching areas shall be removed as directed. Mulch materials which are deposited in a matted condition shall be loosened and uniformly spread, to the specified depth, over the mulching areas. Any unevenness in materials shall be immediately corrected by the contractor.

Except as specified in the next paragraph, straw mulch applied to drill seeded or hydroseeded areas shall be immediately affixed by crimping and tacking after application. No mulch shall be applied to seeding areas which can not be crimped and/or tacked by the end of each day. Any drifting or displacement of mulch before crimping and/or tacking shall be corrected by the contractor at no additional cost to the Department.

Crimping shall not be required for areas that are steeper than 3:1. Crimping may also be waived, when specifically directed by the Engineer, for drill seeded or hydroseeded areas with rocky conditions or other areas deemed unsuitable by the Engineer for crimping. Straw

mulch applied to such drill seeded or hydroseeded areas shall only be tacked, as specified in Subsection 3.04(C) below.

Prior to the application of a tacking agent, protective covering shall be placed on all structures and objects where stains would be objectionable. All necessary precautions shall be taken to protect the traveling public and vehicles from damage due to drifting spray.

(B) Anchorage by Crimping:

Except as specified above in 3.04(A), crimping shall be required for all straw mulched areas. Straw mulch shall be anchored into the soil with a heavy disc. Discs shall be flat and serrated with at least 1/4 inch thickness having dull edges and spaced no more than nine inches apart. Straw mulch shall be anchored to a depth of at least two inches and shall not be covered with an excessive amount of soil. Anchoring operations shall be across the slopes where practical with no more than two passes of the anchoring equipment. Immediately following the crimping operation, the crimped area shall be tacked as specified in Subsection 3.04(C) below.

(C) Anchorage by Tacking:

Straw mulch shall be anchored by tacking using a slurry consisting of a minimum of 150 pounds of tacking agent, 500 pounds of wood fiber mulch, and 300 gallons of water per acre. The contractor may increase the quantities of components to ensure the stability of the straw mulch to provide erosion control during the 45 calendar-day maintenance period at no additional cost to the Department.

3.05 Applying Wood Fiber Mulch with Tacking Agent:

Areas seeded but not practical for straw mulch, as determined by the Engineer, shall have wood fiber mulch with tacking agent applied at the variable rates shown in the Table 4 below.

TABLE 4

Slope (H:V)	Tacking agent (Pounds pure mucilage per acre)	Wood Fiber Mulch (Pounds per acre)
Flat to 4:1	50	1,000
From greater than 4:1 to 3:1	100	2,000
From greater than 3:1 to 2:1	150	2,500
Greater than 2:1	200	3,000
Erosive Soil Slopes*	300	3,500
*As determined by Engineer		

The contractor shall submit a batch (tank) mix quantity schedule for seed application and the temporary erosion control mulch application for approval of the Engineers prior to mixing seed, fertilizer, wood fiber mulch and tacking agent in a slurry. Batch mixing and

coverage will be monitored throughout the seeding operations. The contractor shall coordinate the mixing and application operations with the Engineer in advance of all mixing.

3.06 Seeding Acceptance:

After application the Engineer will inspect seeded areas or sub-areas for conformance to the contract requirements. The contractor shall correct, to the satisfaction of the Engineer, any areas not conforming to the specifications. The 45-day maintenance period will begin upon acceptance of the area by the Engineer.

The contractor shall maintain and stabilize each area or sub-area, including shoulder build-up areas, for a minimum period of 45 calendar days after application of the seeding and mulching materials, and acceptance by the Engineer. Any areas damaged from erosion, or that have less than 90 percent of applied mulch remaining, shall be re-seeded, re-mulched, and re-tacked at no additional cost to the Department.

Except for landscape projects, seeding shall be completed, including the 45 calendar-day maintenance period, before the end of the contract time, or sooner if required in the SWPPP or elsewhere in the contract documents. Seeding used as part of a landscape project shall be completed, including the 45 calendar-day maintenance period, before the end of the Construction Phase.

4.0 Method of Measurement:

Seeding (Class II) will be measured by the acre, to the nearest one acre of ground surface seeded. Measurements will be along the ground surface for the areas seeded and mulched, as approved by the Engineer.

5.0 Basis of Payment:

The accepted quantities for Seeding (Class II), measured as provided above, will be paid in two phases corresponding to the application stage and the 45 calendar-day maintenance stage.

Upon completion of the application stage and acceptance by the Engineer, the contractor will be paid 70 percent of the contract bid price per acre for the completed work. Such price will be considered full compensation for furnishing and applying the contract-specified seed mix, fertilizers, soil amendments, tillage, mulch materials, and tacking agent, all required testing, and all equipment and labor required to complete the work as specified herein.

Upon completion of the 45 calendar-day maintenance stage, and acceptance by the Engineer, the contractor will be paid 30 percent of the contract bid price per acre for the completed work. Such price will be considered full compensation for seeding maintenance, including all equipment, labor, and materials required to correct deficiencies in seeded, mulched areas, as specified herein.

No measurement or payment will be made for the mobilizations required to apply and stabilize the seeding for each area or sub-area, as specified herein, the cost being considered as included in the contract price for Seeding (Class II).

An adjustment to the contract will be made if a contractor-requested seed substitution is approved as specified in Subsection 2.02(B) above.

Appendix A

ADOT Specifications

Specification 810 ERCON
Erosion Control

SECTION 810 - EROSION CONTROL AND POLLUTION PREVENTION:

810-2.02 Straw Bales: the title and text of the Standard Specifications are revised to read:

810-2.02 Compost Stabilization:

Compost stabilization shall consist of composted organic vegetative materials stabilized with a tacking agent and used for erosion control.

Compost material shall be dark brown in color with the parent material composted and no longer visible. The structure shall be a mixture of fine and medium size particles and humus crumbs. The maximum particle size shall be within the capacity of the contractor's equipment for application to the constructed slopes. The odor shall be that of rich humus with no ammonia or anaerobic odors.

Compost shall also meet the following requirements:

COMPOST MATERIAL	
Cation Exchange Capacity (CEC)	Greater than 50 meq/100 g
Carbon: Nitrogen Ratio	Less than 20:1
PH (of extract)	6 – 8.5
Organic Matter Content	Greater than 25%
Total Nitrogen (not added)	Greater than 1%
Humic Acid	Greater than 5%
Maturity Index	Greater than 50% on Maturity Index at a 10:1 ratio
Stability	Less than 100 mb 02/Kg compost dry solids – hour

Prior to furnishing on the project, compost mulch samples shall be tested for the specified microbiological and nutrient conditions, including maturity and stability, by a testing laboratory approved for testing of organic materials. Certified laboratory test results shall be submitted to the Engineer for approval.

Tacking agent shall be a naturally occurring organic compound and be non toxic. It shall be a product typically used for binding soil and mulch in seeding or erosion control operations. Approved types shall consist of mucilage or gum by dry weight as active ingredient obtained from guar or plantago. The tacking agent shall be labeled indicating the type and mucilage purity.

The contractor shall have the tacking agent swell volume tested by an approved testing laboratory using the USP method. The standard swell volume shall be considered at 30 milliliters per gram. Material shall have a swell volume of at least 24 milliliters per gram. Certified laboratory test results shall be furnished to the Engineer for each shipment of

homogenous consistency to be used on project areas or as directed by the Engineer. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser volume shall have the tacking agent rate increased by the same percentage of decrease in swell volume from the standard 30 milliliters per gram. Material tested with greater volume may reduce tacking agent rates by the same percentage of increase in swell volume from the standard 30 milliliters per gram. Tacking agent shall be pure material without other starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.

810-2.03 Riprap and Rock Mulch: the first paragraph of the Standard Specifications is revised to read:

Riprap for cut and fill transitions designated on the plans shall be angular in shape and shall conform to the requirements of Section 913. Unless otherwise specified, riprap for cut and fill transitions shall conform to gradation A or B in the table below, as designated on the project plans.

810-2.03 Riprap and Rock Mulch: the second paragraph of the Standard Specifications is revised to read:

Rock mulch for pipe inlet and outlet protection, headwall and wingwall treatment, and rock check dams shall be angular in shape and shall conform to the requirements of Section 803. Rock mulch shall be in accordance with gradation C below, unless otherwise specified. Section 803 requirements for use of pre-emergent herbicide and for post-placement watering of rock mulch shall not apply to rock mulch applied under Section 810.

810-2 Materials: of the Standard Specifications is modified to add:

810-2.05 Erosion Control Blankets:

(A) General:

Erosion control blankets shall consist of temporary, degradable, rolled erosion-control products of short-term or extended-term duration, composed of natural fibers mechanically or structurally bound together with natural or polymer netting to form a continuous matrix.

Erosion control blankets of short-term duration shall have a minimum one-year degradation period for both the netting and fibers, and be composed of 100 percent virgin aspen excelsior wood fibers or 100 percent agricultural straw. Extended-term erosion control blankets shall have a minimum two-year degradation period for the netting and fibers, and be composed of heavy-duty excelsior blankets, or a mix of 70 percent straw and 30 percent coconut fibers, or 100 percent coconut fibers. Heavy-duty excelsior blankets used in the extended-term category shall have a minimum weight of 0.7 pounds per square yard. All other types of blankets, whether for short-term or extended-term use, shall have a minimum weight of 0.5 pounds per square yard.

Fibers for short-term erosion control blankets shall be encased top and bottom with photodegradable polypropylene or 100-percent biodegradable natural organic fiber netting, as specified on the plans. Should the plans not specify type of netting for short-term blankets, fibers shall be encased with photodegradable polypropylene. Fibers for extended-term blankets shall be encased within either a heavy duty UV-stabilized top netting (black) and bottom netting (green), or two UV-stabilized nettings (black). All netting for extended-term blankets shall be photodegradable polypropylene.

Erosion control blankets shall also conform to the following requirements:

Property	Test Method	Short-Term Duration	Extend-Term Duration
Minimum mass per unit area (ounces/sq. yd.)	ASTM D 6475	8	8*
Minimum Thickness** (inches)	ASTM D 5199	0.25	0.25
Minimum Tensile Strength (lbs./ft) ***	ASTM D 5035	75x75	100x100
*Heavy duty blankets shall have a minimum mass per unit area of 11 ounces per square yard. **Numerical value represents total thickness of blanket, including netting. ***Numerical value represents minimum average test result in either direction.			

The contractor shall provide Certificates of Analysis, in accordance with Subsection 106.05, for all erosion control blankets.

Fiber color shall be natural unless otherwise specified in the special provisions.

Fibers shall be free of weed seed, and shall be locked in place to form a mat of consistent thickness. Erosion control blankets using straw shall conform to the requirements of Subsection 810-2.05(B). Fibers shall remain evenly distributed over the entire area of the blanket after being placed on the slope.

Erosion control blankets shall be furnished in four-foot to eight-foot wide rolls, and shall be wrapped with suitable material to protect against moisture and extensive ultraviolet exposure prior to placement.

Each roll shall be labeled to provide sufficient identification for quality control purposes.

Staples shall be U-shaped, 11 gauge steel wire, and shall be one inch wide by six inches long or two inches wide by eight inches long.

(B) Straw Certification:

All wheat straw shall be free from noxious weeds in compliance with the standards and procedures of the Arizona Crop Improvement Association (ACIA) or the North American

Weed Management Association (NAWMA). The contractor shall provide documentation that the product containing wheat straw was manufactured solely from straw certified as free of noxious weeds by the ACIA or NAWMA. Such certification shall be provided to the Engineer prior to delivery of the products to the project site. Products using wheat straw without such certification will not be acceptable.

810-2.06 Sediment Logs, Sediment Wattles, and Fiber Rolls:

(A) General:

Sediment logs, sediment wattles, and fiber rolls shall be manufactured or constructed rolls of fiber matrix, secured with netting, and used for the purpose of controlling erosion by slowing high flow water velocity and trapping silt sediments. Netting for fiber rolls and sediment wattles shall have a minimum durability of one year after installation, and shall be tightly secured at each end of the individual rolls.

The unit weight for wattles and fiber rolls shall be 0.144 pounds per inch of diameter per linear foot. Sediment log unit weight shall be 0.167 pounds per inch of diameter per linear foot. The minimum weight per linear foot for sediment logs, wattles, and fiber rolls shall be determined by multiplying the specified diameter of the device by the appropriate unit weight, in pounds per inch of diameter per linear foot per, as specified above.

Netting at each end of sediment logs and wattles shall be secured with metal clips or knotted ends to assure fiber containment.

(B) Sediment Logs:

Sediment logs shall be constructed of 100 percent curled-fiber aspen wood excelsior with interlocking barbs, and with 80 percent (±10 percent) of the fiber at least six inches in length. Netting shall consist of long-term degradable, open weave, plastic or natural fiber containment mesh, with a maximum one-inch by one-inch grid. Sediment logs may also be filled with compost conforming to the requirements of Subsection 810-2.02. Mesh shall be photodegradable or biodegradable with a life expectancy of 12 to 24 months. Sediment logs shall be twenty inches in diameter. Unless approved by the Engineer, sediment logs shall be 10 feet (±10 percent) in length.

(C) Sediment Wattles:

Sediment wattles shall be manufactured rolls composed of weed-free, 100-percent agricultural wheat or rice straw, or excelsior wood fiber, encased in a tube of long-term photodegradable plastic or biodegradable natural fiber netting with a maximum one-inch by one-inch grid. Sediment wattles shall have nominal diameters of 9, 12, or 18 inches, with lengths from seven to twenty-five feet, as specified on the plans. Fibers shall be evenly distributed throughout the wattle.

Wattles composed of wheat straw shall conform to the requirements of Subsection 810-2.05(B). Wheat straw wattles without the specified certification will not be acceptable.

(D) Fiber Rolls:

Fiber rolls shall be constructed from heavyweight manufactured blankets consisting of wood excelsior, straw, or coconut fibers, or any combination of such fibers, mechanically or structurally bound together with natural or polymer netting to form a continuous matrix. Blankets used to construct fiber rolls shall be between 6.5 and 8 feet wide by approximately 50 feet long. Wood excelsior blankets shall have 80 percent of its fibers equal to or greater than six inches. Blankets used to construct the fiber rolls shall have photodegradable plastic or biodegradable natural netting, with a maximum one-inch by one-inch grid, on at least one side.

Fiber rolls containing any amount of wheat straw shall conform to the requirements of Subsection 810-2.05(B). Fiber rolls with wheat straw that are not certified as specified herein will not be acceptable.

The contractor shall produce fiber rolls by rolling the blankets along their width to produce 50-foot lengths, and securing the rolls with jute twine spaced at 6.5-foot intervals along the roll for the full length and at six inches from each end. If shown on the plans or directed by the Engineer, the contractor shall cut the blankets before rolling to produce completed fiber roll lengths of between 14 and 50 feet. The nominal diameter of the finished rolls shall be 9, 12, or 18 inches, as specified on the plans. Overlapping of more than one blanket may be required to achieve larger diameters. When overlapping is required, the end of one blanket shall overlap six inches onto the end of the next blanket prior to rolling.

810-2.07 Sediment Control Berms:

Sediment control berms shall consist of soil obtained from within the project limits, or compost, or both, as called for on the plans.

Compost and tacking agent used in sediment control berms shall conform to the material requirements of Subsection 810-2.02.

810-3.02 Straw Bales: the title and text of the Standard Specifications are revised to read:

810-3.02 Compost Stabilization:

Compost stabilization shall be applied as shown on the plans or as directed by the Engineer.

810-3 Construction Requirements: of the Standard Specifications is modified to add:

810-3.05 Erosion Control Blankets:

(A) General:

Erosion control blankets shall be installed in accordance with the project plans and details, or as directed by the Engineer in accordance with the manufacturer's instructions.

For slope installations short-term duration blankets, as specified in Subsection 810-2.05, shall be used for slopes from 4:1 (horizontal to vertical) to 2:1. Extended-term blankets shall be used for slopes steeper than 2:1. For channel installations erosion control blankets shall conform to the requirements for extended-term duration.

The contractor shall coordinate with the blanket supplier for a qualified representative of the blanket supplier to be present at the job site at the start of installation to provide technical assistance as needed.

(B) Slope Installations:

Erosion control blankets shall be oriented in vertical strips and anchored with six-inch long staples in cohesive soil and eight-inch long staples in non-cohesive soil. A two-to-five inch overlap, or as required by the manufacturer, shall be required for side seams. A 6-inch overlap, shingle-style, shall be required for blanket ends. The distribution of staples shall be as recommended by the manufacturer. A six-inch deep by six-inch wide trench shall be located at the top of the slope. The erosion control blankets shall be stapled to the bottom of the trench with staples spaced six inches apart across the width of the blanket. The trench shall then be backfilled and compacted.

(C) Channel Installations:

For channel installations, erosion control blankets shall be installed parallel to the flow of water. The first blanket shall be centered longitudinally in mid-channel and anchored with staples, as recommended by the manufacturer. Subsequent blankets shall follow from channel center outward.

The distribution of staples shall be as recommended by the manufacturer.

Successive lengths of erosion control blankets shall be overlapped a minimum of six inches with the upstream end on top. Staple the overlap across the end of the overlapping lengths with staples spaced six inches apart.

A six-inch deep by six-inch wide trench shall be located at the upstream and top of side slope terminations of the blankets. The erosion control blankets shall be stapled to the bottom of the trench, with staples spaced six inches apart across the width of the blanket. The trench shall be backfilled and compacted.

810-3.06 Sediment Logs, Sediment Wattles, and Fiber Rolls:

(A) Sediment Logs:

Sediment logs shall be installed in channel bottoms, around catch basins, as check dams, or on slopes, as shown on the plans or as directed by the Engineer in accordance with the manufacturer's instructions. Sediment logs shall be secured with one-inch by one-inch by 46-inch hardwood stakes placed with a maximum spacing of two feet on center, or as shown on the plans. Each stake shall be intertwined with the netting on the downstream side of the log and driven approximately two feet below finished grade. Unless otherwise specified, soil shall be tamped against the upstream side of the log to assure that storm water is forced to flow through the log rather than under it.

Sediment logs installed in drainage channel bottoms shall be perpendicular to the flow of the water, and shall continue up the channel side slope two feet above the high water flow line. Spacing of the logs shall be as specified in the plans.

When sediment logs are used to construct check dams, the logs placed on the ground shall be buried four to six inches deep as shown on plans.

Logs placed on slopes shall be installed in a two-inch deep by five-inch wide anchor trench. The ends of adjacent logs shall be abutted tightly together so that water cannot undermine the logs.

(B) Sediment Wattles:

Sediment wattles shall be installed on slopes as shown on the plans, and in accordance with the manufacturer's instructions, or as directed by the Engineer. Sediment wattles shall be secured with wooden stakes as shown on the plans. The ends of adjacent wattles shall be abutted tightly together.

(C) Fiber Rolls:

Fiber rolls shall be installed on slopes as shown on the plans, and in accordance with the manufacturer's instructions, or as directed by the Engineer. If no spacing is shown on the plans, fiber rolls shall be placed as specified in the table below. Fiber rolls shall be installed in a two-inch deep by five-inch wide anchor trench. Fiber rolls shall be secured with wooden stakes having a 3/4-inch by 3/4-inch minimum cross-sectional dimension and 3-foot minimum length, or as shown on the plans. Each stake shall be driven through the center of the finished fiber roll, spaced a maximum of three feet apart, and driven approximately two feet into the ground. The ends of adjacent rolls shall be abutted together.

Fiber Roll Spacing Table	
Slope (Horizontal to Vertical)	Spacing (feet)
Less than 6:1	50
6:1 to 4:1	25
Greater than 4:1 and less than 2:1	17
2:1 to less than 1:1	10
1:1 and greater	5

810-3.07 Sediment Control Berms:

Sediment control berms shall be installed as shown on the plans. The berm shall be considered a temporary erosion control protection measure. As directed by the Engineer, the contractor shall remove segments of the berm within areas that have been successfully re-vegetated prior to allowing traffic operations.

810-4 Method of Measurement: of the Standard Specifications is revised to read:

Silt Fence will be measured in accordance with Subsection 915-5.

Compost stabilization will be measured by the cubic yard of applied and tacked compost material.

Pipe Inlet/Outlet Treatment, Headwall and Wingwall Treatment, and Rock Check Dams will be measured per cubic yard of rock mulch. Cut and Fill Transitions will be measured per cubic yard of riprap.

Sand bags will be measured per each filled sand bag placed into service.

Erosion control blankets will be measured by the square yard of total ground area covered.

Sediment logs, sediment wattles, and fiber rolls will be measured by the linear foot.

Sediment control berms will be measured by the linear foot along the center line of the berm, parallel to the ground surface.

810-5 Basis of Payment: the second paragraph of the Standard Specifications is hereby deleted:

810-5 Basis of Payment: the last two paragraphs of the Standard Specifications are revised to read:

The accepted quantities of erosion control blankets, measured as provided above, will be paid for at the contract unit price per square yard, which price shall be full compensation for the work, complete in place, including all excavation and preparation; and furnishing, installing, and maintaining the erosion control blankets, as approved by the Engineer. Such unit bid price shall be considered full compensation for either short-term or extended-term blankets. No additional payment will be made for technical assistance provided by representatives of the blanket supplier, the cost being considered as included in the unit bid price.

The accepted quantities of sediment logs, sediment wattles, and fiber rolls, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for all labor, including excavation, preparation, and installation, and all materials, tools, stakes, equipment, and incidentals necessary for furnishing and installing

the devices, complete in place, as approved by the Engineer. No additional payment will be made for sediment logs used as check dams, the cost being considered as included in the unit bid price paid for sediment logs.

The accepted quantities of compost stabilization, measured as provided above, will be paid for at the contract unit price per cubic yard of compost material applied and tacked, as directed by the Engineer. Such price shall be full compensation for the work, complete in place, including all materials, preparation, installation, tacking, maintenance, and removal of the compost-stabilized area.

The accepted quantities of sediment control berms, measured as provided above, will be paid for at the contract unit price per linear foot, regardless of the type of material used. Such price shall be full compensation for the work, complete in place, including all materials, preparation, compaction, installation, and maintenance, and removal of the sediment control berm.

No additional measurement or payment will be made for temporary features subsequently designated by the Engineer as permanent, the cost being considered as included in the unit bid price.

No additional measurement or payment will be made for associated earthwork, ground preparation, overlapping, stakes, silt and debris removal and disposal, or maintenance, the cost being considered as included in the unit bid price.

Appendix B

Numeric Reporting Requirements

Numeric Summary of BMPs

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
MEASURES TO CONTROL DISCHARGES THROUGH EDUCATION						
3.2.2.1(a)(ii)(1)	Train ADOT Employees - Illicit discharges and illegal dumping					
	Number of trainings offered					
	Number of employees trained					
	(*Other numeric measurable goals(s)*)					
3.2.2.1(a)(ii)(2)	Train ADOT Employees - Non-stormwater discharges					
	Number of trainings offered					
	Number of employees trained					
	(*Other numeric measurable goals(s)*)					
3.2.2.1(a)(ii)(3)	Train ADOT Employees - New Construction and land disturbances					
	Number of trainings offered					
	Number of employees trained					
	(*Other numeric measurable goals(s)*)					
3.2.2.1(a)(ii)(4)	Train ADOT Employees - New development and significant redevelopment					
	Number of trainings offered					
	Number of employees trained					
	(*Other numeric measurable goals(s)*)					
3.2.2.1(a)(ii)(5)	Train ADOT Employees - Storm sewer system and highway maintenance					
	Number of trainings offered					
	Number of employees trained					
	(*Other numeric measurable goals(s)*)					
3.2.2.1(a)(ii)(6)	Train ADOT Employees - Good housekeeping and material BMPs					
	Spill Prevention and Response - Number of trainings offered					
	Spill Prevention and Response - Number of employees trained					
	Pesticides, Herbicides, and Fertilizer Application - Number of trainings offered					
	Pesticides, Herbicides, and Fertilizer Application - Number of employees trained					
	Industrial Sites - Number of trainings offered					
	Industrial Sites - Number of employees trained					
	(*Other numeric measurable goals(s)*)					

NA - Not Available

Numeric Summary of BMPs

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
3.2.2.1(a)(iii)	Develop Stormwater Library					
	Number of times accessed or visited					
	(*Other numeric measurable goals(s)*)					
3.2.2.1(b)	ADOT Construction Contractor Training and Certification					
	Number of trainings offered					
	Number of ADOT employees trained/certified					
	Number of ADOT employees recertified					
3.2.2.2(b)(i)	Distribution of Educational Materials Through Public Places					
	Number of materials (posters, brochures, signs, etc.) distributed					
	Number of public events ADOT attended with displays					
	(*Other numeric measurable goals(s)*)					
3.2.2.2(b)(ii)	Distribution of Educational Materials Through ADOT's Stormwater Webpage					
	Number of hits on webpage					
	(*Other numeric measurable goals(s)*)					
3.2.2.3 (b)	Record and Consider Public Comments					
	Number of public comments received					
	(*Other numeric measurable goals(s)*)					
3.2.2.3(c)	Implement a Public Reporting System					
	Number of reports received from public					
	Number of reports investigated					
	(*Other numeric measurable goals(s)*)					
3.2.2.3(d)	Develop a Stormwater Component of the Adopt-a-Highway Litter Initiative					
	Number of volunteer groups participating					
	Number of miles cleaned					
	Amount of trash collected (tons)					
	(*Other numeric measurable goals(s)*)					
3.2.2.3(e)	Continue Implementation of Litter Hotline					
	Number of calls received					
	(*Other numeric measurable goals(s)*)					

Numeric Summary of BMPs

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
ILLICIT DISCHARGE/ILLEGAL DUMPING DETECTION AND ELIMINATION MEASURES						
3.2.3.1(a)	Maintain Illicit Discharge Authority					
	(Numeric Measurable goal(s))					
3.2.3.1(b)	Enforce Standard Encroachment Permit					
	Number of enforcement actions					
	(Other numeric measurable goal(s))					
3.2.3.1(c)	Implement Non-Stormwater BMPs					
	(Numeric Measurable goal(s))					
3.2.3.1(d)	Inspect Outfalls for Dry Weather Discharges					
	Number of major outfalls inspected					
	Number of 71 identified major outfalls inspected					
	Number of priority outfalls inspected					
	Number of storm drain cross connection detected					
	Number of illicit discharges detected					
	Number of other dry weather flows detected					
	(Other numeric measurable goal(s))					
3.2.3.3(b)	Investigate Illicit Discharges (Source Identification)					
	Number of storm drain cross connection investigated					
	Number of illicit discharges investigated					
	Number of other dry weather flows investigated					
	(Other numeric measurable goal(s))					
3.2.3.3(c)	Respond to Complaints					
	Number of complaints received					
	Number of complaints responded to					
	Average response time (in days)					
	(Other numeric measurable goal(s))					
3.2.3.3(d)	Report Incidental Dry Weather Discharges					
	Number of discharges reported to ADEQ					
	(Other numeric measurable goal(s))					
3.2.3.4(a)	Take Action to Eliminate Existing Dry Weather Flows					
	Number of existing dry weather discharges eliminated					
	(Other numeric measurable goal(s))					

NA - Not Available

Numeric Summary of BMPs

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
3.2.3.4(b)	Take Action to Eliminate Sources of Illicit Discharges					
	Number of storm drain cross connection eliminated					
	Number of illicit discharges eliminated					
	Number of dry weather discharges eliminated					
	(*Other numeric measurable goal(s)*)					
3.2.3.4(c)	Coordinate with Local Jurisdictions for Complaint Response and Investigation					
	Number of illicit discharges reported to other jurisdictions for follow-up					
	(*Other numeric measurable goal(s)*)					
3.2.3.5	Responding to Spills					
	Number of highway accident spills responded to					
	Number of highway accident spills prioritized (potential for discharge)					
	(*Other numeric measurable goal(s)*)					

NA - Not Available

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
MEASURES TO CONTROL DISCHARGES FROM NEW DEVELOPMENT AND REDEVELOPMENT						
3.2.5.2	Install Post-Construction Stormwater Control BMPs					
	Number of new post-construction stormwater control BMPs installed					
	(*Other numeric measurable goal(s)*)					

NA - Not Available

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
MEASURES TO CONTROL DISCHARGES FROM ROADWAYS						
3.2.6.1(b)	Inspect Storm Sewer System					
	Number of inspections performed					
	(*Other numeric measurable goal(s)*)					
3.2.6.1(c)	Develop Maintenance Schedules and Priorities					
	(*Numeric measurable goal(s)*)					
3.2.6.1(d)	Perform Repair, Maintenance, and Cleaning					
	Number of miles of roadways repaired/maintained					
	Number of inlets cleaned					
	Number of drain inlets containing significant materials					
	(*Other numeric measurable goal(s)*)					
3.2.6.2(c)(ii)	Require Certification/License					
	Number of licensed ADOT applicators					
3.2.6.2(d)	Stabilize Roadway Slopes (attach summary of tracking & prioritization)					
	Acres of roadway slopes stabilized					

* In accordance with 3.2.6.1(b), ADOT has 24 months to implement a system to inspect and record conditions of its storm sewer system

NA - Not Available

Section Number	Stormwater BMP or Activity	Annual Reporting Year (July1 - June 30)				
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
MEASURES TO CONTROL DISCHARGES FROM ADOT MAINTENANCE FACILITIES						
4.1.5.3	Stencil Drain Inlets at ADOT Facilities					
	Number of new catch basins installed					
	Number of catch basins marked or stenciled					
	(*Other numeric measurable goal(s)*)					

NA - Not Available